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ABSTRACT

The Committee on National Statistics convened a conference in October 1979 to begin to examine the question of how discrimination and equity in education can be measured. The 10 participants represented a wide range of disciplines, and the 15 representatives of federal agencies included both producers and users of indicators of equity. Background presentations were made on current indicators of equity; then conferees discussed several topics basic to improvement of the current indicators, such as facilitating assessment of the impact of education policies on equity, research on social indicators, existing data that can be more effectively utilized, and mechanisms for acquiring unavailable data. Participants agreed on several points: (1) it is easier to measure equality than equity; (2) conceptual work should be the initial focus in developing indicators; (3) disaggregation of data should be maximized; (4) a broad view connecting family, education, and occupation should be used in work on social indicators; and (5) development of indicators necessitates distinguishing among and recognizing scientific, moral, and political questions. The participants developed an extensive list of suggestions for the research community, for establishing an advisory body, for agencies that produce reports containing indicators of equity, and for development of new or more disaggregated indicators. (Author/BW)

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INDICATORS OF EQUITY IN EDUCATION

Report of an Exploratory Conference

Convened by the

Committee on National Statistics

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Committee on National Statistics

Assembly of Behavioral and Social Sciences

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This report has been reviewed by a group other than the authors according to procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

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The Committee on National Statistics also expresses its thanks to all who participated in the conference; they are listed in Appendix H. We acknowledge with gratitude the special efforts of Abbott Ferriss, John Langan, and Robert Parke, who took time after the conference to prepare expanded revisions of summaries or statements they made at the conference. These statements are included as appendixes to the report.

The contributions of Carol Weiss and Conrad Taeuber, who chaired the conference, were a major factor in the stimulating exchange of ideas at the conference. They also provided careful reviews of the report.

Dorothy Gilford, a member of the staff of the Committee on National Statistics, organized the conference and was responsible for preparing this report. She was assisted by Heidi Hartmann and Patricia Roos of the Assembly of Behavioral and Social Sciences; they prepared minutes of the conference. Christine McShane provided valuable editorial assistance and compiled a list of the conference recommendations. Carolyn Carroll did extensive reference work to provide documentation for statements made at the conference. Edwin Goldfield, the executive director of the committee, provided administrative support for the project. Gloria Wise, Margaret Fulton, and Thelma Neal shared the responsibility of typing the material for the conference and the report.

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CONFERENCE ON INDICATORS OF EQUITY IN EDUCATION

SUMMARY

The Committee on National Statistics (CNSTAT) of the National Research Council convened a conference on October 11-12, 1979, to begin to examine the question of how discrimination and equity in education can be measured. Carol Weiss (Harvard University), chaired the conference, but because inclement weather delayed her arrival, Conrad Taeuber, chairman of CNSTAT, served as chairman pro tem for most of the first day. The 10 participants who attended the conference represented a wide range of disciplines, and the 15 representatives of federal agencies and other organizations in attendance included both producers and users of indicators of equity.

The conference was convened at the request of three offices in the U.S. Department of Health, Education, and Welfare: the Assistant Secretary for Planning and Evaluation, the Assistant Secretary for Education, and the Women's Educational Equity Act Program. The stimulus for the conference was a letter from the National Advisory Council on Women's Educational Programs addressed to the Assistant Secretary for Education. This letter urged that the Education Division undertake the development of an appropriate system of educational equity indicators to help resolve the difficulties inherent in defining and measuring progress toward the goal of educational equity.

The conferees were asked first to discuss the various concepts of equity and the applicability of models in identifying useful indicators. Background presentations were made on the three major publications (see the agenda, Appendix H) that provide indicators of equity in education. The conferees then discussed several topics that are basic to improvement of

current indicators: (1) issues to consider in developing a system of indicators of equity in education; (2) characteristics of a system of indicators that would facilitate assessment of the impact of education policies and programs on equity in education; (3) current research activities on social indicators; (4) research activities needed for the development of a framework for indicators; (5) existing data that can be more effectively utilized; and (6) efficient mechanisms for acquiring unavailable data.

The representatives of federal agencies and special interest groups were then invited to react to the discussion and to make recommendations. This was followed by general discussion, a summary of the findings of the conference by two of the participants, and a final round-table discussion, which focused on the recommendations the conference group would identify as most significant.

Findings

Participants agreed that it is easier to measure equality than to measure equity. The former appears to be a question of equal quantities or even equal qualities among groups, whereas equity involves the moral notion of fairness. Although the conferees agreed that the selection of one or another concept is a political task beyond the mission of the group, they concurred that it is important to address the measurement issues for both concepts. The conferees also noted that inequalities are not necessarily evidence of inequities.

There was concurrence that conceptual work should be the initial focus of effort in developing indicators of educational equity. The conferees agreed on the importance of the model approach, which forces the development of a conceptual and theoretical framework. They placed special emphasis on the importance of identifying the audience for indicators before developing a model.

In discussing issues to consider in development of indicators, the importance of maximum disaggregation of data was stressed repeatedly.

There was general consensus among the participants that the broad view provided by social research that connects the major areas of family, education, and occupation should be used in the work on social indicators. A key part of the scientific basis for indicators of equity in education may be found in the elaboration and extension of existing research on the socioeconomic life-cycle.

The participants recognized that development of indicators of equity in education necessitates distinguishing among and recognizing scientific, moral, and political questions. Although there was no explicit discussion of the importance of indicators of equity in education, the attitudes of the group were captured effectively in notes (Appendix E) written by one of the participants, John Langan (Georgetown University), after the meeting. He states that if statistical data

> ...are gathered and presented in ways that illuminate significant turning points and causal factors in the educational process, they can alert both the public and policy makers to the possible existence of inequity in the educational system. They can also be used in support and in criticism of proposals to remove or to alleviate inequities that occur. The preparation and presentation of statistical data to serve in arguments about equity requires, in addition to the customary professional standards of accuracy and honesty, the exercise of judgment as to those factors and areas in the educational process most worth investigating and a sensitivity to the moral issues involved. This sensitivity, however, must be distinct from the advocacy of particular moral conclusions or policy positions.

Recommendations

Participants strongly supported the need for research on social processes to guide the conceptualization of a framework for indicators of educational equity. They recognized the need for an advisory body to define the research

needed more specifically and to set priorities. They suggested several procedures that should be followed by agencies responsible for reports of education indicators and enumerated a number of new indicators that should be developed.

It should be noted that these are suggestions, rather than formal recommendations of the conference group. No votes were taken; however, most of the suggestions summarized below were included in summaries or restated by the conference chair without dissent from the conferees. A summary of the detailed suggestions follows:

RECOMMENDATIONS FOR THE RESEARCH COMMUNITY AND FOR AGENCIES SPONSORING RESEARCH ON EDUCATION OR SOCIAL INDICATORS.

Research on Social Forces Outside the Educational Process

1. Conduct research on broad social and historical forces influencing education, such as demographic shifts, economic cycles, wars, immigration policy, and cultural and religious attitudes on sex differences.
2. Conduct studies that offer organizing perspectives for understanding the educational situation, in particular, studies on occupational changes in a generation for women.
3. Develop demographic and social accounts.
4. Initiate research to identify the social and social psychological influences that affect long-term student motivation and that arise from the student's social environment: the family, the peer group, the church, the economy, and the government. Drawing on this research:

a. Develop appropriate measures of motivation and aspiration and initiate a vehicle for periodic assessment of motivation and aspiration;

b. Develop scales to measure educational values, such as parents' ambition for children to attain a given level of education, the interest of parents in the productivity of the schools in stimulating educational achievement, concern that talent is developed to its highest potential, concern that stereotypes are eliminated, and willingness to support the schools through bond issues; and

c. Study the "push and pull" factors that affect entry into and exit from the educational process.

Research on the Educational Process

1. Study the causal factors that account for differential transition rates of subgroups as they move through the educational process. This might include:

   a. Development of an educational approach to study pupil-teacher interaction;

   b. Research at the micro-level on the range and variation of teacher quality and its importance in terms of educational output; and

   c. Expanded research on how basic skills are acquired and what contributes to school completion.

2. Evaluate the usefulness of minimal competency testing in the states. Use test results to develop indicators by sex within race and ethnic groups.

3. Determine how discrimination finds its way into the learning process.
4. Develop indicators of informal educational experiences (i.e., self-generated learning and lifetime continuing education) and their impact on occupational attainment.

Research on Population Subgroups

1. Address the conceptual question of establishing the reference group for indicators--which involves assessing the goals of society.
2. Extend research to include population groups outside the particular groups that are currently defined politically as in need of equity. This should include determining whether different models are needed for different groups and identifying the variation among population subgroups in the configuration of factors that serve as criteria for equity.

Other Research

1. Develop models that:
   a. Relate the quality of life to education;
   b. Include consideration of the economy;
   c. Are macrodynamic so that they could model, for example, the transition from high school to college; and
   d. Model the learning-earning sequence, drawing on longitudinal data bases.
2. Study factors that have led to improvements in educational performance over time as means of identifying loci for policy intervention.
3. Undertake qualitative research that will provide additional subjective indicators.

4. Study the interface between education and work: how employers use information on schooling in hiring and promoting, the impact of work education programs, the demands for minorities and women by type of job, and how school experiences are tied to work experiences.

RECOMMENDATION TO ESTABLISH AN ADVISORY BODY

The Committee on National Statistics should establish a panel to make a thorough study of the issues raised at this conference. Activities suggested by the conferees that this panel might undertake include:

1. Identifying the desirable characteristics of a system of indicators that would facilitate assessment of the impact of educational policies on equity in education.
2. Assessing the adequacy of the existing research and data for indicators of educational equity.
3. Recommending research activities that may be needed for development of the framework of indicators. These activities would include determining which processes in the educational system would be worth monitoring, their relationship to each other, and the underlying conceptual framework.
4. Making suggestions of ways to build on current social science research to broaden the work on indicators.
5. Assigning priorities to activities in this area.
6. Convening special consumer and constituency groups to monitor indicators that are being used to ensure that they are portraying reality validly.

RECOMMENDATIONS TO AGENCIES THAT PRODUCE REPORTS CONTAINING INDICATORS OF EQUITY IN EDUCATION

1. Give priority to:
   a. Disaggregating statistics by age, sex, race, ethnicity, and other relevant characteristics;
   b. Linking data sets;
   c. Developing data on transitions in individual lives, e.g., from employed to unemployed, married to divorced, or poor to nonpoor;
   d. Using analytic strategies that emphasize the study of cohorts, life-cycles, and social change;
   e. Experimenting with various reference groups for displaying data--the assumption that white men are the ideal group should not be promulgated unthinkingly;
   f. Displaying information on distributions in addition to measures of central tendency, when necessary, to avoid misleading readers. This is particularly important for some minority groups that have a bimodal distribution on certain educational indicators; and
   g. Disaggregating by socioeconomic status within race and ethnic groups. Possible surrogates for socio-economic status might be tax base or per-pupil expenditures of the school district.
2. When developing indicators, involve advocate groups, representatives of race and ethnic groups, women, and educational and institutional planners and practitioners.
3. In selecting indicators, three criteria should be used: the availability of data, the ability of indicators to represent an underlying model of the education process, and policy relevance.

4. Supplement objective measures with subjective measures. It would be useful to see whether they confirm or disagree, and the availability of subjective measures could extend the scope of analysis.
5. In designing sample surveys to provide data for indicators of equity in education, take care to ensure that the sample size for minority groups is adequate to provide reliable indicators.
6. Present indicators in ratio form, providing rationale for the reference group selected as a basis.
7. When presenting data in a chart book, provide an interpretation of the data for the reader, the conceptual framework relevant to interpreting the charts and tables, and the rationale for selecting the tables presented.
8. In monitoring educational indicators, focus analysis on marked changes in past trends, prominent turning points, and departures from the expected. Highlight these analyses in the text of a chart book.
9. Repeat the Civil Rights Commission's report on Indicators of Equality and use it as a model for others, although consideration should be given to use of a reference group other than white males.
10. Adapt The Condition of Education to show detail by individual minority groups and by sex.
11. Use the 1980 census data to identify inequities in education by county, particularly years of school completed, school enrollment, and education attainment by sex and minority group.

12. Explore the use of state achievement test data for development of indicators and for assessing the effect of resource allocation on achievement.
13. In studying population subgroups, especially the foreign-born, look at the entrance point in the U.S. educational system as well as years of schooling achieved.

RECOMMENDATIONS FOR DEVELOPMENT OF NEW OR MORE DISAGGREGATED INDICATORS

New Indicators are Needed For:

1. More sophisticated measurement of the articulation between segments of the educational system based on individual rather than institutional data.
2. Skills and fields of work to augment measures of school outcomes.
3. Placement in programs for the handicapped, by race and ethnic group and by sex, to supplement the indicators published by the Office of Civil Rights.
4. In-school variables that affect educational outcomes.
5. Equity based on achievement test data.
6. The quality of educational outcomes for post-secondary education.
7. The quality of life, using subjective indicators such as satisfaction, associated with different levels of educational attainment.
8. The quality of individual elementary and secondary schools.

Additional Disaggregation Recommended for Present Indicators

1. Disaggregate indicators of the quality of education by place of residence--i.e., the inner city, outer-city suburbs, and rural areas.

2. Indicators based on time to completion of high school or college should be augmented with information on family resources and unemployment in the family. Time to completion indicators for post-secondary education should be disaggregated by field because women and minorities are enrolled disproportionately in certain fields.

3. For minority students, the financial resources of the family and the availability of low-interest loans are important factors in access to higher education. Indicators of equity in education should be further disaggregated to display the relative position of population of subgroups for these factors.

Additional Material

The discussion in the next section of the report (proceedings of the conference) explains the reasons for these recommendations and the assumptions on which they are based. Materials specifically referenced in the conference report are provided at the end of the report. Appendices A, B, C, and D are taken from some of the background papers for the conference. Appendices E, F, and G are written comments that were submitted by several participants. Appendix H contains conference materials, the agenda for the conference, a list of invited participants, and a list of the background papers mailed to participants.

PROCEEDINGS OF THE

CONFERENCE ON INDICATORS OF EQUITY IN EDUCATION

Conrad Taeuber (Georgetown University), chair of the Committee on National Statistics of the Assembly of Behavioral and Social Sciences, National Research Council, agreed to chair the conference, standing in for Carol Weiss, who was delayed by inclement weather. C. Taeuber welcomed the participants on behalf of the Committee on National Statistics. The purpose of the conference, he noted, is to begin to examine the question of how discrimination and equity, particularly in education, can be measured. The participants are to identify the difficulties in approaching the questions of discrimination and equity in a quantitative manner and to suggest actions that can be taken to improve quantitative measures.

Leslie Wolfe (Women's Educational Equity Act Program) noted that the conference was the culmination of two and a half years of planning and thinking stimulated by the National Advisory Council on Women's Educational Programs and by Richard Taeuber (Office of the Assistant Secretary for Planning and Evaluation, HEW). They view this seminar as an initial step in the definition and measurement of educational equity; additional activities are planned. The development of measures is an initial step in making the goal of educational equity concrete by providing indicators of the achievement of the goals set by the program. Wolfe views their task as learning how

to increase the representation of women and minorities at all educational levels.

Concepts of Equity

After the participants introduced themselves, Dorothy Gilford (National Research Council) chaired the discussion of the concept of equity described in four of the background papers prepared for the conference (background papers A-D, listed in Appendix H). She suggested that the discussion be organized around the four concepts of equity discussed in Kevin J. Gilmartin's paper (Appendix A). Gilmartin's four concepts of equity involve: (1) identical resources; (2) equal but differentiated resources to fit students' differing needs; (3) equally effective resources to ensure equal results given equal student characteristics; and (4) unequal resources to ensure equal results by compensating for unequal student characteristics.

Robert Rossi (American Institute for Research) began the discussion of the concept of equity as identical resources. He pointed out that the type of resources is, of course, important, but the distribution of resources is more important; one should not limit discussion to particular population subgroups when considering the distribution of resources. Resources themselves can be indicated by enrollment, by amount of instructional time given, and by anything that increases instructional time. Resources range from lunches to instructional material to teacher training. Funds are perhaps the indicator of resources most easily measured, but more is involved than funds. R. Taeuber pointed out that one should consider whether the demand on the part of students for resources is homogeneous. Rossi noted that measuring resources is a crucial step whether or not one assumes homogeneity of student need. This concept of equity seems to assume homogeneous need but the other concepts

under discussion do not. Lilli Hornig (Wellesley College) pointed out that the problem with using resources as indicators of equity is that very little is known about whether resources are directly related to quality of education. Does money produce results? Rossi noted that this had in fact not been proven, although student-teacher ratios have been found to be related to educational quality. Joseph Kruskal (Bell Telephone Laboratories) commented that teacher quality is extremely important: has it ever been demonstrated that there is wide variation in what teachers give students? Various participants suggested that the range of variation in teacher quality should be established and that more micro-level evidence is needed in order to do so. Kruskal added that we have very little other than anecdotal evidence to indicate the variation in teacher quality; it would be sufficient to demonstrate that variation exists and that it is important in terms of educational output without getting involved with measuring the quality of all teachers. Wolfe pointed out that the quality of teachers may vary by population subgroups. For example, one could be an excellent mathematics teacher for male students but think that women cannot learn mathematics.

She mentioned that there are some studies of the effect of teacher awareness. For example, the blue-eyed/brown-eyed study that treated students differently by eye color taught children the significance of racism. Research has also been done on what keeps women out of mathematics and science fields.

Robert Parke (Social Science Research Council) noted that the match between student and teacher does not seem to be something that can be laid out in advance. The student-teacher match is a process that generates enormous variation and there is very little potential for control over outcomes. Gilford noted that although teacher quality was extremely important in

measuring educational equity, she was dubious about the feasibility of finding out about teacher quality on a national scale in order to measure the equity of all resources nationally. Kruskal observed that more attention has been paid to physical plant resources. Rossi suggested that the important question is the distribution of resources, that we need more basic research at the micro level before we can look at data at the national level. Even at the micro level, however, resources do not seem to be equally distributed.

Some discussion followed about the importance of geographic differentials in expenditures in indicating equity. Edwin Goldfield (National Research Council) wondered if too much attention has been paid to geographical differentials, since the differentials of primary interest in this area are race and sex. Rossi felt that regional disaggregation is extremely relevant and that it would be useful to have data for geographical areas even smaller than regions, such as political precincts. Such research would assist the states' ongoing efforts to equalize financing. Rossi also noted that the only trend data available on the distribution of resources are by geographical area. Data were not available by race until the 1970s. Abbott Ferriss (Emory University) noted that one approach to looking at equity across school districts could involve combining the census data with achievement scores on standardized tests (which states collect) plus information on resources (also collected by the states). Gilford noted that the 1980 census will be a fertile source of data because Congress has mandated that census data be published for school districts; demographic data will be available for individual school districts.

Returning to the question of measuring the quality of student-teacher interaction, Kruskal suggested that the conference could propose student

surveys as a way of measuring teacher effectiveness. His own experience in sitting in classrooms with children indicates that children's remarks about teachers are very accurate. Of course, such surveys would have to be carefully designed to avoid their being simply popularity polls, but he believes they may be very useful. In addition, developing a more structured approach to looking at student-teacher interaction could validate the survey information. Rossi suggested several references and people who might be helpful in designing such a survey or in discussing the problems involved in designing such a survey. He mentioned the work of Lash and Sigal on the status of children in New York City, which was based on a survey conducted by Yankelovitch; work by Nicholas Zill at the Foundation for Child Development; Brim's work on the need for childhood social indicators; James Garborino's work at the Boys' Town Center in Omaha. R. Taeuber noted that considering student-teacher interaction introduces the concept of the learning process as a complex set of interactions—which broadens the data base beyond the resources that were originally discussed and suggests that there may be many unusual sources of data.

Discussion turned toward the remaining concepts of equity in the Gilmartin paper. C. Taeuber noted that the fourth concept, which stresses the demand for as well as the supply of resources, seemed to be enjoying general support from the participants. Participants then discussed whether it was the task of this group to select one or another of the concepts of equity or whether the task was to outline the pros and cons of the four or more different concepts and the possibilities and difficulties of developing indicators for measuring each of those concepts. Parke, for example, felt that the selection of one or another concept was a political task beyond the

scope of the group. Wolfe thought that the definition of equity should be discussed by the group if only to raise issues about the various kinds of equity. She noted that the population subgroups among which equity is identified as a concern are politically defined. The decision simply to count men, women, and various minorities is a political decision. Gilford noted that the task of the conference group was to develop recommendations of activities, including research and data acquisition, that are necessary to provide additional indicators of equity; the group would have to consider for which concepts of equity it would suggest indicators. HEW or the new Department of Education would decide which are appropriate and how to move ahead. Conference members agreed that they could address concepts of equity, thereby laying out the issues.

Rossi, continuing the discussion of concepts of equity, suggested that the group focus on four senses of the term. The first is equity in terms of the distribution of resources, of allocating resources in a fair way. The measurement questions would then be what types of resources are there and who gets them. The second is that providing resources in a fair way involves the notion of what kinds of resources should be provided for people's needs, in contrast to the administrative question of whether the available resources are distributed fairly. The third is the notion of the fairness of the receipt of resources: Is there duplicity? Are some groups more successful in consuming available resources than others? The manner of receipt is important. The fourth involves equity in the use of resources: When those receiving resources enter the labor market, do they do so on equal terms? The question does not involve simply the provision of equal resources but whether they are used in an equally beneficial way by members of the subgroups of interest.

Further discussion of the concept of equity ensued. The distinction between equality and equity was made: Equality appears to be a question of equal quantities or even equal quality among groups, whereas equity involves the moral notion of fairness (National Center for Educational Statistics, 1978). It was suggested that indicators of equality are perhaps easier to develop--but that the group should not lose sight of the fairness issue involved in equity. Measuring the concept of equity requires measuring outputs as well as inputs and indicators of how funds are distributed in various political jurisdictions to various subgroups.

The Use of Models

After a short break the conference moved on to the next topic: the use of models in identifying useful indicators. Rossi, who led the discussion, noted that people are generally reluctant to focus on conceptual issues before attempting to make measurements. The model approach forces the development of a conceptual and theoretical framework. This conceptual framework allows us to understand our assumptions and to identify information that should be measured concurrently or should be collected from the same sample. Referring to an article by de Neufville (1978-1979), he noted that validating indicators requires looking at their relationship to other variables in order to establish what they mean in context. If other variables move in the direction anticipated, the validity of the indicators is established. The use of a conceptual framework also clarifies the types of data analyses that are desirable at the macro level. A framework also suggests what sorts of indicators ought to be reported contiguously -- what data are good to have on nearby pages. A conceptual framework also explains the causal relations underlying the processes under study; it should always include that

explanatory component. Equations are then developed to model the hypothesized understanding, and quantitative research is attempted to specify the model.

To develop a useful conceptual framework it is necessary to consider the relevant audience. For example, Caplan and Barton (1976) in reviewing Social Indicators 1973 (Office of Management and Budget 1973) note that the volume may have fallen short by not considering those who make allocation decisions; instead it relied on the opinions of experts about the needs for social indicators.

Rossi then suggested an outline for developing a conceptual framework for educational equity. First it is necessary to identify the audience; then to clarify the linguistic or semantic difficulties in arriving at an acceptable concept of equity. Soliciting perspectives other than those of the current politically defined subgroups of interest (i.e., women, men, and particular minorities) is important, as is considering other population subgroups. Theoretical formulations from areas other than educational instruction or educational resource allocation are relevant. Synthesizing microlevel research findings and theoretical formulations can contribute to building a model or conceptual framework for educational equity. It is necessary to attempt to validate studies done at the micro level at the macro level. Structural equation modeling should be continued. We may not be ready now for a social indicator report on equity in America; it is important, however, to continue research on social indicators. Perhaps the ultimate goal is a system of social accounts (i.e., a model) for various population subgroups of movement among the several major sectors of society (i.e., progression of school-aged youth through successive educational levels and employment), but we should not be too preoccupied with that.

There followed some general discussion on the first point--identifying the audience. The group agreed that the audience should not be limited to the Washington policy makers or the particular population subgroups currently defined as of interest. The packaging of indicators was also discussed. Havens Tipps (U.S. Commission on Civil Rights) suggested that the use of technical appendices serves to make a document available to divergent audiences.

The group suggested moving on to developing a list of factors that all could agree would be essential in measuring equity, notwithstanding one's concept of equity: Which processes in the educational system would be worth monitoring? When are more data required? What indicators of progress are available now? Short of assessing the question "Are people learning?" do we have countable variables, such as years of school completed? Are we spending money on worthless things? Are we measuring the wrong things? Wolfe noted that there may be different levels of inefficiency in the available data in measuring different items on the desired list.

Gilford noted that the diagram shown in Appendix B provides a list of areas for which indicators are needed. The diagram follows students from high school through college, professional, and graduate school to earning a degree and carrying out research. The factors that seem to affect movement from high school to college are such things as advisers, admissions standards, financial assistance, geography, high school curriculum, and socioeconomic status. Rossi noted that the list should focus on processes and on the relationship of variables to each other and to the underlying conceptual framework. Tipps noted that the diagram does provide a conceptual framework: it suggests various processes and mechanisms and indicates the leverage points for making

change, thereby indicating crucial points for monitoring the change. Indicators of whether the manipulations are effective can also be located on the diagram--for example, numbers of earned doctoral degrees.

Currently Available Indicators

After a break for lunch, several people from federal agencies described their efforts at developing indicators of equity in education. Denis Johnston (U.S. Bureau of the Census) discussed the 1976 social indicators report and future plans; Havens Tipps discussed the activities on indicators at the Commission on Civil Rights, and Roslyn Korb (National Center for Education Statistics) and Nancy Dearman (National Center for Education Statistics) discussed The Condition of Education 1979 (National Center for Education Statistics 1979).

D. Johnston discussed Social Indicators III (Bureau of the Census 1980), to be published by the Bureau of the Census in 1980. In Census Bureau tradition, it consists mainly of tables and provides little text--what text there is is in "Censusese." He noted that the Census Bureau hopes to develop scholarly articles on the creation of these social indicators. An issue of The Annals of the American Academy of Political and Social Science, edited by Conrad Taeuber, will be devoted to analyzing the report and is scheduled to appear in March 1981.

D. Johnston also mentioned plans to establish a new scholarly journal called Social Indicators Quarterly. Speaking to the problem of the audience for indicators, Johnston noted that the audience is small and policy makers do not appear to be the major part of it. The audience may be largely policy makers in training, such as students, and certainly librarians.

More than 15,000 copies of Social Indicators 1976, which was prepared and published under the auspices of the Office of Federal Statistical Policy and Standards, have been sold. The Census Bureau plans to continue with the document as it is--that is, as a comprehensive compilation of available data in different subject areas. D. Johnston noted that Social Indicators, unlike the Civil Rights Commission's report on indicators of equality, does not measure progress toward a particular goal; by contrast, these indicators relate to different goals. With reference to explicit measures of educational equity, he noted that the Census Bureau had not attempted to develop any, but they do show educational data disaggregated by race and sex. He noted, however, that the geographic area is the nation, and data are not presented for smaller geographic areas. In the future the Census Bureau may present data for states based on the 1960, 1970, and 1980 censuses.

In the discussion following the presentation, Gilford asked what would stimulate the Census Bureau to do more in the area of equity. D. Johnston replied, "more active expression of interest by the education community." Parke suggested that the Census Bureau should expand the time range over which the indicators are available to include 1940 and continue it through 1980 and beyond. He noted that researchers at the University of Wisconsin are making public-use tapes for the 1940 and 1950 censuses. D. Johnston noted that such tapes will enable researchers to look at cohorts for 40 years and will be a tremendous contribution to research. There followed some discussion of whether time series data are essential in developing social indicators. Tipps feels that they are not essential, although the Civil Rights Commission's report was limited to time series data because its exclusive goal was assessing national progress. The Civil Rights Commission is currently

developing 1970-1979 time series data from the Current Population Survey and would like to have the Census Bureau produce the type of social indicators after 1980 that the Civil Rights Commission developed in its recent report.

Tipps went on to describe the Civil Rights Commission report, Social Indicators of Equality for Minorities and Women, which is based on Census data from 1960 and 1970 and data from the 1976 Survey of Income and Education. In terms of indicators of educational equity, only those for age and grade level attained were available. The report also has indicators for earnings and occupation types. The report defines equality as having the same characteristics as the majority male group. In one portion of the report, equity was conceptualized in terms of earnings and a regression analysis related earnings to education, weeks and hours worked, etc. Equity therefore would involve similar returns for all population subgroups on these variables rather than simple equality on average.

Ferriss noted that the types of measures used in the report are generally those of central tendency--that is, the mean for the subgroup under consideration is used to indicate the condition of that subgroup.

Setsuko Matsunaga Nishi (City University of New York) noted that with respect to Asian Americans, measures of central tendency are particularly inadequate because they mask bimodal distributions. Among Asian Americans and other groups there is a typical split between new and old immigrants, which presents a serious problem. When the measure of central tendency is used as an indicator for the group, and that measure is particularly high (in the case of Asian Americans, such measures are often higher with respect to education than those for majority men), the disadvantaged subgroup of the minority group is excluded from participation in programs designed to improve educational

advantage. Tipps noted that although nearly all of their measures were in fact measures of central tendency, they did develop two measures of distributions. One is the segregation index across 441 detailed occupations; the other, a measure of income overlap, was excluded from the final report. Ferriss believes that it would be simple to develop new measures that avoid the problems of measures of central tendency--for example, using quartiles to describe the data.

Tipps continued with his presentation by describing selected tables of the Civil Rights Commission's report, noting that the key to interpreting the tables (a sentence in the text of the report describing how a particular cell can be interpreted) is extremely useful in getting the message of the tables across to the reader. He noted that although the direction of the ratios is not always the same, the graphs are consistent. The project required two people, more than three years, an excellent computer system, and $200,000.

In the discussion period, the group raised a number of issues. For example, Parke noted that the focus in the report on minority groups and women reflects a political mandate, a fact that he feels makes the overall report less scientific than it would otherwise be. The lack of comprehensiveness that results from not looking at all differences among all population subgroups in our society implies a description of society that is less than accurate by error of omission. Hornig noted that there could be goals other than achieving those of the majority male standard; perhaps the circumstances of majority men are not ideal, either.

A discussion of the adequacy of educational data ensued. In his experience Tipps had found education to be the area for which the most data were available, although additional analysis is needed. The Civil Rights

Commission report does not contain a discussion of competency test results. Tipps believes that testing will be an increasingly important area, and that people will want measures of the validity of various testing techniques. Measures of the objectives of education would also be useful: What is learned? To what use is it put in the labor market? The Civil Rights Commission found no data on this topic. Yet the available data, with time and energy, can be used to develop many new indices. Tipps noted that the Civil Rights Commission developed a measure of occupational overqualification, and in a forthcoming report they will look at underemployment in relation to education for various subgroups as well.

Ferriss pointed out that it is important to remember that occupation is not the only purpose of education. Still, it is a benefit and as such should be equal across groups. Many people noted that although much data are available, certain crucial kinds of data are not. Gilford mentioned that college completion rates are not available by quality of college or individual institution. Ferriss noted that achievement test data are available in time series and that it would be ideal to couple achievement test results with other school district data. Heidi Hartmann (National Research Council) noted that school district data can be merged with available census data for school districts using matching techniques developed by the Census Bureau. Gilford commented that Congress has mandated that future census data be published by school district. Joyce Payne (National Advisory Council on Women's Educational Programs) expressed her particular interest in minority competency testing; her group is interested in finding out whether minority women do less well on these tests. Gilford pointed out that to answer such questions, adequate sampling rates for race, sex, and ethnic groups must be used.

Payne noted that minimum competency tests are not used in 30 states, as pages 68 and 69 in The Condition of Education 1979 (Department of Health, Education, and Welfare 1979) document. Denver started competency testing as early as 1954. Nishi pointed out that now is the ideal time, when not all states are using the tests, to evaluate the usefulness of minimum competency testing. Such research would be useful to other states and to the nation in policy formulation on this issue. It is not necessary to have national statistics to speak to issues of national concern. In response to a question by Gilford about the availability of cross-state comparisons in competency testing, Dearman responded that Chris Pica at the Education Commission of the States is studying minimum competency testing across states. Payne noted that the National Institute of Education is looking at this question, too.

Korb and Dearman began their presentation on the National Center for Education Statistics' report, The Condition of Education. Korb discussed the indicators and Dearman discussed the organization of the book, its dissemination, and what they know about the users of it. Dearman noted that their report must meet an annual deadline of June 1. Therefore, any change in the report is difficult because the work involved in making changes cuts into their ability to meet the deadline. Changes are made from year to year, however, particularly in the focus of the special topics. For example, two growth areas, preprimary education and adult and vocational education, are special topics in the 1980 report. She noted that currently the Census Bureau does not always use questions that are comparable from one census to the next; hence consistent time series data are lacking.

The group suggested that perhaps there should be an advisory committee on educational statistics for the Census Bureau; it was also suggested that the public needed to be alerted to this lack of consistency. Dearman noted that they are developing school financing indicators for the 1981 report. Korb remarked that in preparing for the conference presentation they went through the report, which has over a hundred exhibits, and found it difficult to know which exhibits represented indicators of educational equity and which did not. Their efforts yielded a four-page list of indicators (Appendix C) which they distributed to the conference participants. Korb stated her belief that an indicator presumes a value judgment—for example, is preprimary education desirable?

Various questions on the availability of particular indicators were addressed to the presenters. For example, is there information on licensed and unlicensed daycare? The answer is that information is available only on licensed daycare. Korb noted that there is no information on the handicapped in the report. Janet Simons (Children's Defense Fund) commented that although there are federal regulations requiring that states report learning disabilities, most people lack faith in the reliability of these data. The definition of a learning-disabled child is not uniform, and, moreover, states receive money based on their estimates of the number of learning-disabled children, so presumably they have an interest in overestimating the numbers of such children.

Discussion followed on the products of the Statistical Analysis Group in Education (SAGE) of the American Institute for Research, which have been commissioned by the National Center for Education Statistics. Korb remarked that the Gilmartin paper was one product of their efforts on equity. Dearman

noted the possibility of using the results of the longitudinal survey known as 1980 High School and Beyond Survey for outcome indicators. Ferriss observed that demographic life tables can be used. Nishi pointed out that entrance points in the educational process are as important as exit points. One should look at the foreign-born, particularly since the change in the immigration laws in 1965. Years of school completed for the foreign-born may not reflect contributions by the U.S. system to the training of that minority group. For example, Filipino women look extremely good on those educational indicators that rely on years of schooling achieved, but many of these women are foreign-born and have in fact received their schooling outside the United States. Conference participants noted that many of the indicators presented in The Condition of Education involve outcomes. Rossi and Ferriss mentioned additional research on social indicators being conducted elsewhere, for example, at the National Institute of Mental Health.

Korb then presented some of the charts from The Condition of Education in order to solicit feedback from the group. Numerous technical comments were offered. It was mentioned that the charts require a statement to help people interpret them correctly. It was also pointed out that there is a conceptual step from a table or chart of information to an indicator. As one participant put it, "Conclusions leap out of indicators, not from tables." Other comments were made concerning the table on the percentage of all enrolled 14-to-17 year olds who are two or more years below modal grade. It was pointed out that the chart is limited to those who are enrolled in school. There is no information about how far behind the dropouts were for their age level when last in school. The table, therefore, provides only part of the picture of teenagers' grade attainment.

A number of participants returned to the question of the interpretation of the data. Many participants agreed that agencies presenting indicators in a chart book format have a responsibility to offer an interpretation of the data; they have a responsibility not to leave too much to the reader. It is a characteristic of a chart book format, which is compact, that complexities will be lost. Many participants argued that simplicity, coupled with the absence of interpretation of the data, is a serious disservice to the public. It was also pointed out that no conceptual framework for interpreting the charts or tables has been developed; the group suggested that an essay on the conceptual framework relevant to interpreting the charts and tables should ordinarily accompany a chart book. D. Johnston noted that some of the charts needed additional development in order to become indicators. Presumably, the next generation of such books will be able to incorporate subsequent developments along those lines. R. Taeuber pointed out that intellectual choice is involved in selecting what is presented in a chart book and that the rationale for these choices should be reported. What is the logic of what is presented? This idea goes along with the problem of providing a conceptual framework for the interpretation of the material.

Development of Indicators

At 4:30 the group began to discuss issues that should be considered in developing indicators. The discussion was chaired by Carol Weiss. Ferriss pointed out that it is crucial to increase the sample size for minorities. Given the sample sizes currently used, indicators show variation over time that is not really there. Carol Smith (National Advisory Council on Black Higher Education) presented a summary of the council's report on the access of minorities to education, which outlines a number of areas that are crucial in

evaluating equity. The council has a specific mandate to consider blacks in looking at what the federal government can do to remove barriers facing blacks in furthering their education. She seconded a common theme of the day: issues of equity require maximum disaggregation in terms of data presentation. Disaggregation often requires larger-scale data collection, which runs into problems of limited budgets.

She emphasized that news headlines about access to higher education suggest that blacks have parity, but in fact there is no parity because (1) blacks attend primarily community colleges and cannot get into four-year colleges and (2) many of the blacks enrolled in college are not taking the courses for credit. Furthermore, it is important to look at the content of the courses taken and the subject area of the courses, not just the enrollment.

Providing an example of apparent bias in one federal program, Smith noted that in Title IX Graduate and Professional Opportunities Program (GPOP), which attempts to improve opportunities for women and minorities in graduate and professional schools, 40 percent of the participants are majority women. In this program two issues are relevant. The first is the problem of what constitutes underrepresentation of these population groups in a field, since the funds are designed to encourage women and minorities to enter only fields in which they are underrepresented. The second is that schools that have good track records in encouraging black students to finish programs do not get institutional funds, but only fellowship money. Since black schools have the best track record they are not benefiting from the institutional monies. Smith suggested that another important indicator of educational equity is the family's financial resources. Low-interest loans are especially important to minority students. Smith pointed out that native Americans and women have

organized to push for special legislation for particular educational programs, whereas blacks have not done so.

In speaking to the question of audience, Smith pointed out that it is important to get the information to advocates, since they will lobby the policy makers. In this way the information will be used even though the policy makers may never look at it. She noted that the council's charter lists 12 areas in which the federal government can act to affect educational opportunities. The council will make recommendations in these areas designed to accomplish a 25-year plan for the achievement of the goals they set for the education of black Americans.

Simons pointed out that it is especially important to look at programs for the handicapped, not only to determine their needs but also to find out whether they are being used to resegregate according to race. Special education classes, for example, are often thought to be used in that way. Nishi mentioned that there have been studies by Bernard Macklin of the 600 special schools in New York City. Rossi suggested that the group consider the processes involved in education in order to develop indicators and measures and to assess data needs and availability. He noted that the issues raised by Smith are extremely important: course subject matter, access to four-year colleges, enrollment for credit. He also noted that developing indicators requires dialogue with advocates, a notion that was seconded by many participants at the conference. Hornig felt it would be especially important to involve educational and institutional planners and practitioners. In closing the day's discussion, Gilford noted that the Women's Educational Equity Act Program itself would be evaluated and one reason they need to develop indicators is in order to know whether their programs have been effective.

The following morning the group reconvened, beginning with a discussion by Korb of the future plans of the National Center for Education Statistics (NCES) regarding indicators of equity in education. NCES is funding the Statistical Analysis Group in Education (SAGE) for the express purpose of conducting needed research on indicators. The Gilmartin paper is part of their planning effort for future work on educational equity. SAGE is also looking at participation in adult basic education. They are also developing data on nonpublic schools; identifying the universe is extremely difficult, but there appear to be about 20,000 such schools. SAGE is also attempting to create a longitudinal file from 1975 to 1978, using the data from the Higher Education General Information Survey (HEGIS), which provides information about the financial condition of institutions of higher education. If the HEGIS data could be merged with data from the Cooperative Institutional Research Program (CIRP) survey of incoming college freshman, one might be able to get characteristics of individuals aggregated by institutional characteristics. Gilford observed that the Commission on Human Resources of the National Research Council has a longitudinal file of doctoral recipients that goes back several years, which may be of value to NCES.

Korb went on to describe a few efforts in equity in other sections of NCES. In particular, the elementary and secondary branch is using the 1976 Survey of Income and Education conducted by the Census Bureau to look at language minorities. She noted that NCES is not doing anything right now on functional illiteracy. A report on the condition of education for Hispanics is being done by the post-secondary group; participants urged that such a report provide statistics by sex and ethnic group among Hispanics whenever possible. SAGE, while looking at the equity of the distribution of resources

among school districts, is also developing indicators using financial information, such as expenditure per student by school district by state, along with fiscal neutrality (i.e., the legal theory that education expenditures could not be related to local school district property wealth). An annual profile of educational equity was mandated by Congress (Section 1201 of PL 95-561). NCES selected equality of expenditures as an indicator of equity.

In response to a question from Hornig, Korb noted that the breakdowns of expenditures are not very often available by program (e.g., athletics) but are much more often broken down by source (e.g., local, state, or federal). Korb noted that NCES plans to come out with a report soon that focuses on equity and welcomes comments from the group on what its priorities should be. D. Johnston mentioned that he had been struck by the graphs in The Condition of Education that indicate that minority high school graduates do go to college, although there are still many fewer relative to the population of minority high school graduates. He urged that these data could best be portrayed using a kind of process flow chart approach. Korb and Dearman noted that data from the National Longitudinal Survey could be used to develop some of this process information.

After the presentation by NCES staff, conference participants continued the discussion of educational equity indicators, using Chart 14 in the Gilmartin paper (Appendix D, page 49). The chart identifies eight issue areas, e.g., enrollment, retention and dropout rates, subject matter, and employment of teachers. It was suggested that this type of chart would need to be supplemented by more process information in order to serve as an adequate framework for developing indicators. Weiss suggested that school

closings should be examined for possible adverse impact on minority teachers. Hornig also expressed interest in the employment aspects of Chart 14.

Returning to the general problem of how to develop indicators, Weiss noted that there should be three criteria: the availability of data, the ability of the indicators to express an underlying model of the education process, and policy relevance. Participants suggested the kinds of areas that needed to be included; for example, Nishi suggested the necessity to consider family resources amd unemployment in the family as well as the speed of high school or college completion. Weiss suggested looking at delayed enrollment and whether people catch up later. Nishi noted the significance of interruption or delay for women. In the sciences, she noted, minorities are often older students and take longer to obtain degrees, whereas women finish their education faster. Completing an education doctoral program takes longer than other doctoral programs, and since women and minorities are enrolled disproportionately in education, their average completion rates are longer. Disaggregation according to type of program of this kind is necessary.

Data Sources

The conference participants turned their attention to discussing potential data sources. Tipps noted that the Survey of Income and Education, which he used in the Civil Rights Commission report, offers data for states and also for approximately 120 standard metropolitan statistical areas, including some central cities that are broken out separately. He felt that the survey could be used to meet many of the needs expressed. It will, however, be replaced by the Survey of Income and Program Participation which will consist of data from a continuing panel of respondents who remain in the sample for five quarters. It was pointed out that the NCES National Longitudinal Survey covers only 1972

high school graduates and their subsequent careers--about 20,000 people. The new High School and Beyond Survey, however, will follow the 1980 senior and sophomore classes; data will therefore be collected on the subsequent careers of those who drop out before completing high school.

The use of these samples in developing indicators of equity sometimes results in cell totals that are simply too small when cross- classified by race or sex. Hornig noted that data by sex were particularly important: for example, if college mathematics majors were disaggregated by sex, it would be seen that 42 percent of all college math majors are women, yet math is not considered a traditional field for women. Weiss wondered whether the model indicated by Figure 14 of the Gilmartin paper could be specified; in looking at each issue the group might discover what data problems require solutions.

Parke then began his presentation, a summary of research on social indicators, by commenting on the Office of Management and Budget's publication on indicators, referring particularly to the indicators relevant for this group. He believes the emphasis in social indicators should be on the importance of social differences that affect life outcomes. For example, mortality rates would be greatly reduced if all women had the mortality rate of white female college graduates. Much social science research has been done on how age, race, and sex affect education, how these four affect occupation, and how these five affect income. He noted in particular Blau and Duncan's (1967) pathbreaking study and Featherman and Hauser's book, Opportunity and Change (1978), which was recently cited by a Washington Post columnist. In this sense, Parke stressed, this kind of research is policy-relevant. The policy relevance of general social research lies in its provision of a general framework for understanding society. Such research encourages a particular

set of assumptions to become widely held. Social science research that attempts to be specifically policy-relevant may not, in fact, be as relevant as the kind of general social science research that conditions the way people look at the world.

When this research is included for consideration, there is a great deal of research related to the question of equity--how to take advantage of this research is the question before this conference. Parke stressed that the focus must include research on educational factors and outcomes as well as on general social processes. Parke also expressed his conviction that research should not be limited to particular groups that are currently politically defined as requiring equity. He noted that there are intense political pressures in selecting the groups, political differences about the nature of the targets and goals, and conflicts between values such as productivity and equity.

What is required, therefore, is a sustained research program that would look at the dynamic causes of outcomes. This type of research would require peer review and would focus on measurement--which in its broadest sense relates to the meaning of observed data; measures attempt to reveal the meaning of data. In Parke's opinion, we have enough data; what we need are testable models. This kind of research program should probably be sustained by grants or grant-like contracts rather than by requests for proposals and contracts. He noted that the Center for Population Research of the National Institute for Child Health and Human Development is able to do excellent research in a grant format.

This kind of long-run social science research program should be linked to a statistical effort. The data used in the research should be disaggregated

in a number of ways. It would also be important to link data sets and to use micro data, for example, on individuals and individual schools. More information on individual life transitions should be developed and used and such data should be analyzed in terms of cohorts and life-cycles--perhaps the two most important contributions to social demography in recent years. Parke further urged that any data to be used in the research program should be insulated from administrative purposes, citing the Department of Housing and Urban Development's attempt to use research data to prosecute real estate agents. If respondents believe that the information they supply may lead to adverse actions against them, the replies are likely to be useless for research.

Parke stressed the need for a set of appropriate strategies for getting high-quality work guided by scientific objectives. His suggested research program would be broad, including consideration of all social factors, and sustained (for example for 20 years). It would be focused on questions of measurement and validation of indicators, rooted in models, and based on grants and peer review. It would concentrate on transitions and cohorts, use disaggregated data, link data sets, and use micro data sets.

Weiss asked Parke to what extent his suggestions were not being followed now. Parke responded that the work on social indicators was not being done within the tradition of social science research on mobility and broader social processes. D. Johnston noted that it is not an easy process to use this mammoth set of literature to help develop indicators. Nishi pointed out that the social research Parke referred to does connect the major areas of family, education, and occupation; it is precisely the broad view provided by that research that should be used to broaden the work on indicators. Nishi

stressed her belief that any research program cannot avoid politics, which will always decide priorities. Parke agreed with Nishi's view, noting that the strategy to be used in getting such a broad research program funded is to define the research broadly enough to include many political interests. With broad programs, even with an emphasis on equity issues, politics will not define the research questions. As he put it, "vindicators" rather than indicators are to be avoided. Parke also noted that it was important that the data resulting from major research programs or major data collection efforts be made available to all researchers. Ferriss asked whether the work on social accounts could be related to education. Parke responded that the Social Science Research Council (SSRC) is organizing a conference on social accounts. He thought it would be possible to include in social accounting such studies as cohort progress through school systems.

R. Taeuber noted that now might be an excellent time to attempt to get the type of social science research program Parke described under way: first, the background social research that the program would build is already strong; second, there is currently a great deal of political uncertainty in the federal educational establishment; therefore there may be an excellent opportunity for a great leap forward. Donald Hernandez (Social Science Research Council) responded to a question by Hornig about the meaning of "testable." He believes that micro data are crucial to testing hypotheses and that the goal of such work is to be able to make accurate predictions. R. Johnston offered his criteria for model building: consistency of data sets, reliability, predictablity, and comprehensiveness.

Models and Data

Weiss noted that after lunch the group would turn to recommendations. She suggested that in the remaining half hour before lunch, discussion should continue on questions of models and data. Representatives from NCES noted that they are publishing a bibliography of all federal agency data tapes that include information about education. Ferriss noted that models should include (1) material on the quality of life in relation to education and (2) macrodynamic structural equations--time series equations or the application of econometrics to macro indicators. Hornig noted that the models should include process descriptions and that they should include disaggregation by the level of outcomes (for example, completion of high school, preparation for the next step, occupational outcomes). Langan noted that inequalities are not necessarily evidence of inequities. (He elaborated on this statement in notes included as Appendix E.)

Nishi noted that some indicators are relevant only for some groups and that there are variations in the patterns of educational achievement within particular groups. She raised the issue of whether different models may be needed for different groups. Education does not contribute to the well-being of women and minorities in the same way as it does to majority men. A single indicator of socioeconomic status that treats education the same for all groups will misrepresent the overall status of women and minorities.

D. Johnston felt that any model or program should include consideration of the economy, since that affects the benefits to education that people receive. Robert Johnston (United Nations) noted that the kinds of variables in which people are interested are so numerous that one may have to choose which groups are to be emphasized; in cross tabulations there may not be

sufficient observations to allow disaggregation by both race and sex. Parke mentioned the importance of Blau and Duncan's work on occupational mobility (1967). He recommended a comparable research study. Ferriss repeated that he is interested in developing macrodynamic modeling that could model, for example, the transition from high school to college.

Reactions of Invited Observers

A lunch break followed. After lunch the invited observers were asked to share their reactions to the meeting thus far. Charles Byce (College Entrance Examination Board) began by noting that he does only very short-term research immediately relevant to policy questions. He agreed that we should exploit the data already available to develop a better theoretical understanding of the educational process in order to determine remaining data needs. Although he agreed that the Office of Education (OE) should redirect resources to long-term research, he did not think that redirection very likely, since OE does not seem to be looking at long-range questions.

Simons described the Children's Defense Fund and gave her impressions of the issues before the conference. The Children's Defense Fund is a private organization in the District of Columbia that does lobbying, research, and litigation in all issues relating to children (for example, health, education, welfare, and juvenile justice, but not abuse or neglect, which they feel are adequately dealt with by other agencies). They are a very large consumer of existing data, but frequently the data they need are not available. For example, under Title XX of the 1974 Social Security Act Amendments grants to states for programs, $900 million a year is spent on day care for children, but no one knows precisely how many children are being served. It is hard for the Children's Defense Fund to influence policy when they cannot document the

differences between the needs and the resources. Simons feels that school systems should provide more data. The Council of Chief State School Officers, for example, is a barrier to data collection efforts, since they veto a large number of data collection efforts.

Simons also said they had discovered in their work that there appears to be a great deal of suppression of data, that many people are not even aware of the data that are being generated. For example, NCES formerly produced biennial detailed analyses of primary enrollment; nothing has been released since 1975, although the data are collected every year. R. Taeuber replied that this might not necessarily be an example of deliberate suppression of data but rather a reflection of the expense involved in packaging data for users. He agreed that the existence of this type of data should be made known.

Hernandez stated that he perceived the central theme of the conference to be the need for researchers to do additional work on educational processes. He recommended, therefore, that (1) the scientific community be commissioned to do additional work on educational processes and (2) the study of these processes should include the family, the quality of teachers, finances, etc., to see how they fit together to determine outcomes. He thought quantitative research by female social scientists on women should be encouraged and agreed that fundamental social science research would eventually contribute to policy because it identified the points of change susceptible to policy action.

Since the National Advisory Council on Black Higher Education is ending, Smith emphasized the need for time series data and for aid in the interpretation of data and statements of caveats. The Council is particularly concerned about the misuse of social indicators and believes that the necessary background must be provided for reviewing indicators.

She stressed that the involvement of representative groups in planning indicators is crucial. The Council also believes that a working definition of educational equity that can be agreed on by many should be developed and that tools to measure it should be developed. They are concerned about the availability of data; fall 1978 enrollment data, for example, have been collected but not released. They have commissioned two papers, one on systemic problems in education and one on the growth of neoconservatism. She noted that Cooke is studying how policy is made for blacks in higher education at federal agencies, foundations, research agencies, and educational associations. His research shows that the idea of equity rarely surfaces and that black presence is most often missing in the policy formulation process.

Goldfield summarized the National Science Foundation's (NSF) program on social indicators research for Murray Aborn (National Science Foundation), who was unable to stay. Goldfield described the NSF program: as part of the social science division it supports research but does not produce any social indicators itself. NSF is particularly interested in supporting research that will lay the scientific groundwork for social measurement. The seven-year-old program provides between $2 and $2.5 million per year for research on social indicators. For example, SSRC's activity in social indicators is funded by NSF. Goldfield mentioned that the National Research Council, through the Committee on National Statistics, expects to undertake a project on subjective social indicators, which is expected to receive support from NSF.

In ensuing discussion Parke stated his belief that there should be a breaking down of the barrier between subjective and objective indicators. Nishi seconded that suggestion, offering the example of investigations of institutional racism in the military that have found that objective indicators

show improvement but subjective indicators do not. What is the discrepancy and why? Hartmann noted that the example points to the need for more qualitative, rather than quantitative, research. Korb felt that there should be more emphasis on longitudinal data sets. She also pointed out that it is important to keep the possibility of linking to other data sets in mind during new data collection. Discussing data comparability, R. Johnston mentioned a United Nations project that found that, in health statistics alone, 45 different classifications were in use simply for the variable, age.

D. Johnston, speaking about the Census Bureau's program, noted that it needs additional funding. Census staff have identified needs for: (1) longitudinal data collection; (2) oversampling small ethnic groups between censuses; (3) gathering information on skills and fields, because measures of education in terms of school completed are insufficient; (4) supplementing objective measures with subjective measures to see if they confirm or disagree (aspirations and expectations are particularly important). D. Johnston stated his belief that equality can be measured but fairness cannot be, even though indicators themselves have a normative component. He pointed out that equity is one goal, but not the only one, especially in a no-growth situation. The argument for equity can be supported even in that situation, however, by looking at productivity; it can be shown that equal access to education benefits society as well as the individuals involved because it improves the efficiency of the allocation of human resources.

Joy Simonson (National Advisory Council on Women's Educational Programs) expressed her appreciation for the invitation to the conference and regretted there was not more representation at the meeting of minorities and women as well as representation from the Office of Education or the National Institute

of Education. She believes the people from OE and NIE particularly need to learn about equity. Gilford interjected that more women, members of minorities, and representatives of OE and NIE were invited to attend the conference but unfortunately were unable to attend; a large number of cancellations came the day before the meeting. (The list of invited participants shows the balance that was sought by the conference planners.)

The National Advisory Council on Women's Educational Programs was created in 1974; its members, who have three-year revolving terms, are appointed by the president, under the authority of the Women's Educational Equity Act. The council generally has vacancies, the filling of which is somewhat influenced by senators and members of congress. Of the 17 members, 3 are men and 3 are ex-officio members (the director of the Women's Action Program in HEW, the director of the Women's Bureau, Department of Labor, and the staff director of the U.S. Commission on Civil Rights). The council's aim is to improve equity for women and girls in education.

They have issued a number of reports on such topics as OE's disbursement of funds, women in high-level policy positions, the deficiencies of data in shedding light on women, and the overlapping needs of older women, single women, and displaced homemakers. The council has also published a report on the educational needs of rural women, an issue on which hearings were held in 1976 and 1977. The council is concerned about the needs of the handicapped; Simonson said that more discussion is needed on this issue. The council is also interested in the ramifications of adult education and part-time education for financial aid and in the educational needs of working women. They cooperated on a project with the National Commission on Working Women. Simonson pointed out that the Women's Educational Equity Act Program has been

very small; the appropriation has now been raised to $10 million. The program offers grants and contracts for: (1) nonsexist curriculum development; (2) reentry of women and displaced homemakers; (3) audiovisual materials; and (4) small grants up to $25,000 on a variety of issues. Grants are also made for studies of higher education and adult education for women. New legislation requires the development of new regulations listing priorities with specific emphasis on the disadvantaged and minorities. Some of this new money will go to local schools to ensure compliance. Simonson offered the support of the National Advisory Council on Women's Educational Programs in forwarding the conference's recommendations.

General Discussion

After these presentations the conference participants discussed a variety of issues. Tipps felt that the work of the Civil Rights Commission should be used as a model in comparative statistics. He pointed out their use of ratios and suggested that all indices can be presented in ratio form using majority men as the basis. Nishi again raised the point that majority men should not always be the standard base and that when used, an explanation should be included of how some groups look good in comparison to that base because the measure used is one of central tendency. She again gave the example of the bimodal distribution of education for Asian Americans, a classic case in which the data require interpretation: it is irresponsible not to offer interpretation in that kind of situation.

Weiss suggested that more attention be placed on students for whom English is not the first language. Horning agreed with Nishi that white men should not always be the basis for equity comparisons; for example, there are more white girls in high school than white boys and perhaps rates for other groups

should be compared with that of white girls. In any case, the definition of the reference group is a problem. She suggested that experimentation could be undertaken with the presentation of data in different ways. Ferriss suggested that one could search for the maximum achievement and set it as the goal: Sweden, for example, has low infant mortality rates and some states and cities in the U.S. are particularly good on this indicator. Langan noted that establishing the reference group is a conceptual question that needs more work and involves assessing the goals of society. He stressed the strong feeling on the part of the conference participants that in developing indicators one has the responsibility to ask how they are likely to be used. Tipps argued that, in the case of the Civil Rights Commission and the issues they wanted to address, the use of the majority male standard was an appropriate decision. Alfred Cooke (National Advisory Council on Black Higher Education) seconded the opinion of many that the choice of the norming group is important. He feels, however, that the white male averages might not be the goal and that within-group comparisons are extremely important. He pointed out that there is a tendency within OE to group all minorities together. He strongly disagrees with this practice because there are variations both within and between groups. R. Johnston agreed, pointing out that on some variables there is more within-group variation than between-group variation; in those cases measures of central tendency are particularly inadequate. The use of distributions would in fact ameliorate these problems. Weiss seconded the point that there is great variability within the group of white men.

James Vanecko (Division of Education) stressed his concern about the information gaps that exist with respect to secondary schooling. There is some evidence suggesting that education seems to fall apart for children after

ages 10, 11, and 12 years. He believes more research is required on how basic skills are acquired, what contributes to school completion, and how school experiences are tied to work experiences. The National Opinion Research Center could contribute data on 1980 dropouts if the money were provided. He believes additional research is needed on the implications of demographic shifts for educational equity and that more information is required on minimum competency testing. He spoke at greater length about the need for information on the transition from school to work. Information is needed on how employers use information on people's schooling, how they hire and promote, and what schools do or do not do in relation to employment. More investigations of cooperative work education programs, which seem to have a large positive impact (students in school longer), are needed. Simonson pointed out that in this effort the demand side of the equation must be studied as well as the supply side: what types of jobs, by race and sex, are being offered? What is happening to race and sex stereotyping?

Vanecko, commenting on the question of whether policy makers use research, argued that they do. His experience has been that research, evaluation, and analysis do have an effect, especially to focus options: research often indicates that particular policy solutions will not work. Weiss seconded that point. Her impression is that research has had an impact; in particular, policy makers want a conceptual framework to make sense out of their experiences. Similarly, Nishi in her experience has found that congressional staffs are relatively well informed. Simonson noted that much new legislation requires evaluations; the council she represents will recommend that legislation requiring evaluation be amended to include evaluation of the impact of the programs on women and minorities. Various conference

participants suggested that the phrasing be such that the groups for whom the impact is to be assessed could change: for example, to assess the impact on "defined subgroups such as majority men, majority women, minority men and minority women."

Summary

Weiss turned the discussion toward the formulation of recommendations or a summary of issues that would have to be dealt with in developing indicators. Both Ferriss and Parke drafted findings and recommendations; Parke summarized his view of the findings of the conference:

1. The development of indicators of equity in education requires distinguishing among and recognizing scientific, moral, and political questions.

2. The scientific basis for indicators of equity in education may be found in the elaboration of the work on social mobility, such as that found in Featherman and Hauser, Opportunity and Change (1978).

3. Research on indicators of equity in education should be set in the context of a broad program of social science research that focuses on developing indicators of factors that influence life outcomes; the research program should focus on questions of measurement. It should be supported by grants awarded through peer review. It requires that statistical and research data be insulated absolutely from administrative determinations, legal actions, or other uses affecting the subject of the individual record.

4. Some suggested specific research programs are: the survey of occupational changes in a generation; demographic and social accounts for education; macro-social dynamic structural equation models; a review of plans for the 1985 Census; a repeat of the Civil Rights Commission's report on indicators of equality; and the adaptation of The Condition of Education report to show detail for individual minority groups and women.

5. The research requires: disaggregating statistics by age, sex, color, ethnicity, and other relevant characteristics; linking data sets; using micro data sets—that is, data on individuals or individual units, with identities deleted; developing data on transitions in individual lives, for example, from employed to unemployed, or married to divorced; and emphasizing the study of cohorts, life-cycles, and social change.

A summary of Parke's statement on the findings of the conference is found in Appendix F in a memorandum he sent after the conference. Ferriss summarized recommendations that several research areas be developed further:

1. Sampling reliability; minority groups should be oversampled.
2. The process of education should be better understood so that turning points can be identified.
3. The indicators being used should be monitored to ensure that they are validly portraying reality.
4. The articulation of the various parts of the U.S. education system should be made clearer and research on time to completion should be expanded to allow for the multiple uses of these institutions by students in their education.

5. More research is needed on how to influence the motivation of the student, the student's self-concept, the role of expectations, etc.

Ferriss also identified the issues of resource allocation, staffing, the relationship of resources to outcomes, and occupational attainment as requiring additional work. He stressed the importance of the use of models in identifying critical variables and the necessity of lobbying the bureaucracy actively for data availability. An elaboration of Ferriss' remarks is found in Appendix G in a working paper he wrote after the conference.

Nishi supplemented these remarks, saying that she felt more emphasis was required on a number of factors:

1. Entry into and exit from the educational process, especially the "push and pull" factors affecting people.
2. The broad societal and historical forces influencing education such as economic cycles, wars, and immigration policy.
3. Particular comparisons, such as the inner city versus the suburbs, the different points of entry of various people into the educational process, and how residential distribution affects the quality of education.
4. The appropriate definition for the reference standard.
5. The possibility of using different indicators for different groups (some indicators, of course, would be important in all groups but different models leading to different indicators may be appropriate for some subgroups).

Tipps commented on Nishi's last point, saying that if different models are needed for different groups then perhaps a model has not been developed that

is comprehensive enough to encompass all cases. Weiss suggested that the group not foreclose the possibility of different models, that it had to be aware of the possibiity that different models might be appropriate. She suggested that some emphasis be placed on within-school variables that affect educational outcomes. There are both internal and external forces that work on the school completion process, but the external forces have received more attention. R. Johnston pointed out that each group may have its own idea of its goals. It may not be right to impose an implicit idea of success on all groups. Hornig expressed concern, however, that we not develop separate but equal parameters for different groups. Cooke felt that we should nevertheless look at which variables make sense for which subgroups. R. Johnston suggested that in the general discussion of recommendations, the conference participants distinguish between short-run and long-run goals and suggestions. Weiss, in summarizing the discussion, highlighted the possibility that measures of equality and equity may be different.

Equality can be conceptualized as (1) equality of outcomes, (2) equality of outcomes controlling for differences in motivation, or (3) equality of outcomes controlling for differences in motivation and life patterns, such as marriage, childrearing, geographical mobility, and delayed education. In all cases, equality of ability is assumed; in all cases, the effects of differential financial capacity and legal/administrative restrictions would lead to inequality. Equity, which is a concept with an explicit valuational position, can be defined somewhere along this continuum and can perhaps take account of other dimensions, such as resources.

R. Taeuber noted that, in terms of HEW's interest, the agenda of this conference alone could take a year, but that what was important today was

defining the issues. Hornig suggested that a panel set up by the Committee on National Statistics should be able to do further work on these issues and that there is a need for such a group. There are issues of data with respect to equity, and issues of equity with respect to data. She agreed emphatically with R. Taeuber about the amount of time required for a thorough study of the issues raised in the two days of the conference. D. Johnston emphasized that it would be necessary to build on the work already done in the field, such as Gilmartin's definitions of equity; many data have already been assembled. It is important to assess the adequacy of the existing research and data.

To close the conference, Weiss suggested that each participant offer what she or he considered to be the most important recommendation the conference group could make. Beginning the round, Ferriss suggested that achievement test data be used in indicators of educational equity, the goal being equal achievement by all groups. Simonson indicated the importance of disaggregating all data by sex and race. Smith emphasized the proper representation of the groups for whom equity is an issue. Cooke emphasized the need for a historical perspective. Hornig emphasized the importance of forming a panel to define issues and assign priorities to activities in this area; she would like to see such a panel develop indicators of the quality of educational outcomes along the order that Ferriss talked about. Parke stressed the necessity to provide studies that offer organizing perspectives for understanding the educational situation and the general social situation; particularly, he would be interested in a study on occupational changes in a generation for women. Hartmann emphasized looking at within-group variations; such a concern would be compatible with the work begun by Blau and Duncan.

Nishi emphasized the need for organizing views of the quality of life, including the use of such subjective indicators as satisfaction. She also stressed the need to look at criteria of equity and the configuration of factors and their variation among population subgroups. She stressed the development of an organizing framework that could take this type of variation into account.

Langan emphasized the need to clarify the relationship between the concepts of equity and equality and the relationship between measures of each. (His comments are further detailed in Appendix E.) R. Johnston suggested that all data series presented in The Condition of Education should be investigated to see whether they could be disaggregated by sex, race, ethnic group, age, geographical area, etc. If not, that would be one indication of data needs. Korb emphasized the need to develop structures and frameworks. Miron Straf (National Research Council) emphasized the necessity of examining the margins of distributions, not just the average, and the importance of looking at the causes for any improvements over time, since these causes may differ for different groups. A study of causes might indicate where policy intervention could be effective. Hernandez emphasized the need for analytical research on educational structure and processes. Tipps emphasized the necessity for the NCES work to be based on micro data and models as opposed to existing tables. Models should be developed to tell us what we need; we should not restrict ourselves to what is available. D. Johnston emphasized the need to develop a model of the educational process. The learning-earning sequence in particular needs to be modeled; the use of longitudinal data bases will be important in that effort.

R. Taeuber expressed the need for structural oversight of the indicator effort in education. He believes it should be located near the top policy levels, such as the Office of the Secretary. Gilford recommended that the causal factors that account for differential transition rates of subgroups as they move through the educational process be studied. It is also important that quality ratings be developed for elementary and secondary schools. R. Johnston commented that there is a national index of quality in the health field and a large literature on the evaluation of hospitals that would be worth looking at with regard to the task of developing quality indices of elementary and secondary schools. Weiss recommended that more Blau-and-Duncan-type studies be done for women and that conceptual work be the first focus of effort in developing indicators of educational equity.

The meeting was adjourned at approximately 5:00 p.m.

References

Blau, P.M., and Duncan, O.D. (1967) The American Occupational Structure. New York: John Wiley and Sons, Inc.

Bureau of the Census (1980) Social Indicators III. Washington D.C.: U.S. Government Printing Office.

Caplan, N., and Barton, E. (1976) Social Indicators 1973: A Study of the Relationship between the Power of Information and Utilization by Federal Executives. Ann Arbor, Michigan: University of Michigan, Institute for Social Research.

De Neufville, J. I. (1978-79) Validating Policy Indicators. Policy Sciences 10:171-188.

Featherman, D. L. and Hauser, R. M. (1973) Opportunity and Change. New York: Academic Press.

Gilmartin, K. J. (1979) The Status of Women and Minorities in Education. Technical Report 3, Contract No. 300-78-0150. Prepared for National Center for Education Statistics. Palo Alto, California: American Institute for Research.

National Center for Education Statistics (1978) Educational Opportunity, the Concept, its Measurement and Application. NCES 78-201.

Office of Management and Budget (1973) Social Indicators 1973. Washington, D.C.: U.S. Government Printing Office.

National Center for Education Statistics (1978) Educational Opportunity, the Concept, its Measurement and Application. NCES 78-201.

National Center for Education Statistics (1979) The Condition of Education. Washington, D.C.: U.S. Government Printing Ofice.

Office of Management and Budget (1973) Social Indicators 1973. Washington, D.C.: U.S. Government Printing Office.

Gilmartin, K. J. (1979) The Status of Women and Minorities in Education. Technical Report 3, Contract No. 300-78-0150. Prepared for National Center for Education Statistics. Palo Alto, California: American Institute for Research.

National Center for Education Statistics (1978) Educational Opportunity, the Concept, its Measurement and Application. NCES 78-201.

Office of Management and Budget (1973) Social Indicators 1973. Washington, D.C.: U.S. Government Printing Office.

National Center for Education Statistics (1978) Educational Opportunity, the Concept, its Measurement and Application. NCES 78-201.

National Center for Education Statistics (1979) The Condition of Education. Washington, D.C.: U.S. Government Printing Ofice.

Office of Management and Budget (1973) Social Indicators 1973. Washington, D.C.: U.S. Government Printing Office.

APPENDIX A

The Concept of Equality of Educational Opportunity

K.J. Gilmartin

The Concept of Equality of Educational Opportunity*

Although there is wide agreement in the United States that our society accepts and supports the fundamental value of equal opportunity, when it comes to areas of specific application there is considerable disagreement over its meaning. Several alternative interpretations of the concept of equality of educational opportunity are advocated by

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*Many of the concepts in this section are described in greater detail in Coleman (1968).

Source: Gilmartin, J. J. (1979) The Status of Women and Minorities and Education. Technical Report 3, Contract No. 300-78-0150. Prepared for National Center for Education Statistics. Pal Alto, California: American Institute for Research, p. 6-11.

various groups in the United States today. These alternative interpretations are not merely of academic interest. They lead to the advocacy of different educational policies and different standards for judging the current extent of educational equality and, in turn, to the use of different social indicators and analyses in social reports on the status of women and minorities in education.

In preindustrial Europe, the extended family, as the basic unit of social organization, had complete authority over the children and complete responsibility for them. A child's education or training was whatever seemed necessary to maintain the family's productivity. In that kind of society, the concept of equality of educational opportunity had no relevance at all. The fixed stations in life that most families occupied precluded any idea of opportunity and, even less, equality of opportunity.

With the industrial revolution, economic organizations developed outside the household, and children began to be occupationally mobile outside their families. The training that children received came to be of interest to all in the community, since the economic stability of the community depended on the types and levels of skills possessed by community members. Private education grew with the expansion of the mercantile class, but the idea of general educational opportunity for all children by means of public education arose only in the nineteenth century. In England, private schools run by churches were not supplemented by a state-supported system until the Education Act of 1870. The class system directly manifested itself through the schools. The state-supported schools became the schools of the laboring lower classes with a sharply different curriculum from the church-run schools, which served the middle and upper classes. Only the latter schools provided the curriculum and examinations that permitted admission to higher education. The United States, which did not have a strong traditional class structure, saw universal education in free public schools become widespread in the early ninteenth century. The public schools were attended by representatives of all classes and provided a common educational experience for most American children--excluding only Indians and southern Negroes, who were without schools, and some of the poor who did not attend available schools.

In the United States, the first concept of equality of educational opportunity consisted of (1) providing a free education up to a given level, (2) providing a common curriculum for all children, (3) providing that children from diverse backgrounds attended the same school, and (4) providing equality of resources within a given locality, since local taxes supported the schools. This conception of equality of opportunity is still held by many, but there are some assumptions in it that are not obvious. First, it does not deal with inequality of resources across localities. Second, it assumes that the existence of free schools eliminates economic sources of inequality of opportunity. Many families could not allow their children to attend school beyond an early age, however, because their labor was necessary to the family. Economic sources of inequality of opportunity have now become small up through secondary education, but at one time they were a major source of inequality, and for higher education they remain so, even with the existence of "free" state colleges. Third, this concept of equality of opportunity assumes that opportunity lies in exposure to a given curriculum. The school's role is passive, providing an opportunity by being available, while the child's role is active, achieving through use of the opportunity.

A second concept of equality of educational opportunity challenged the second premise of the first concept: that providing a common curriculum for all children would provide equal opportunities for all children to realize their potential through education. Many schools began taking career development into account and diversified their curricula on the assumption that children who are not going to attend college will have greater equality of educational opportunity if they have a specially designed curriculum than if they must take the curriculum designed for college entrance. A major difficulty with this concept, however, is that it takes as given what is actually problematic--that a given child is going into a given postsecondary occupational or educational path. This is a true dilemma, and one that no educational system has fully solved.

A third stage in the development of the concept of equal educational opportunity was made official in 1896 when the Supreme Court upheld the southern states' notion of "separate but equal" facilities,

rejecting the third premise of the first concept--providing that children attend the same school. This stage ended in 1954 when the Supreme Court ruled that legal separation by race inherently constitutes inequality of opportunity. In developing what was to become a fourth concept of equality of educational opportunity, the Supreme Court tried to articulate the source of inequality in "separate but equal" facilities: that the effects of such separate schools were likely to be different. In particular, one's fellow students were viewed as contributors to the quality and effects of one's education. Thus, a concept of equality of opportunity that focused on effects of schooling began to take form. This concept may be defined in terms of consequences of the school for individuals with equal backgrounds and abilities: equality of educational opportunity requires equality of results, given the same individual input. (A more sophisticated version of this concept, equality of results relative to each student's potential for learning, is presented in Pugh, Killalea, and Loatman [1978].)

A fifth concept is now emerging, defined in terms of consequences of the school for individuals with unequal backgrounds and abilities: equality of educational opportunity requires equality of results, even given different individual inputs. Such a definition implies that educational equality is reached only when the results of schooling (achievement and attitudes) are the same for racial and ethnic minorities as for the majority group. There are currently serious questions about this last definition of equality of opportunity. It assumes that other factors, such as the family and community environments, are not as influential as the school environment in affecting achievement over the years attending school, even though these factors may differ greatly for the two population groups. Such an assumption seems highly unrealistic, especially in view of the importance of family background for achievement. If such possibilities are acknowledged, however, then how much can the results be different before there is inequality of educational opportunity? The relative intensity of the convergent school influences and the divergent out-of-school influences determine the effectiveness of the educational system in providing equality of educational opportunity. In this perspective, complete

equality of opportunity can be reached only if all the divergent out-of-school influences vanish or are entirely compensated for by the schools; given continuing divergent influences during the school years, equality of opportunity can only be approached and never fully reached.

Originally, the role of the school was passive, providing an opportunity by being available, and the role of the student was active, achieving through constructive use of the opportunity. The evolution of the concept of educational opportunity has reversed these roles: when equality is judged in terms of results, the responsibility to create achievement lies with the educational institution, not the student. The school's responsibility has shifted from increasing and distributing equally its resources to increasing the quality of students' achievements. This change in expectations will have strong consequences for the practice of education in future years.

The goal of equal results is distinct from and partially conflicts with the goal of equal opportunity coupled with fair competition (meritocracy), since the outcomes of a competitive system will be unequal individual results (Bell, 1972; Levine, 1975). Through inherited advantage, those unequal results may limit the opportunity of succeeding generations. But the relevant question is why those results are unequal. Inequality of outcomes is held to be acceptable if it results from fair competition. The decision of which characteristics are considered to be fair advantages (competence? dedication? seniority? inherited wealth?) is primarily a question of a society's value system. Americans tend to agree that advantages based solely on racial, ethnic, and sexual characteristics are unfair. The uncertainties and difficulties of the recent value shift from equal processes to equal results should not be minimized, however. In time, this value shift may lead to basic revisions in the social basis of reward systems and in the concepts of individual merit (Levine, 1975).

The reason for this discussion of the concept of equality of educational opportunity is that the various senses of this concept would lead one to develop different social indicators when assessing the status of women and minorities in education. Ignoring the third sense of this concept ("separate but equal" education for minorities),

the other four viable senses are (in simplified form) (1) identical resources, (2) equal but differentiated resources to fit students' differing needs, (3) equally effective resources to ensure equal results given equal student characteristics, and (4) unequal resources to ensure equal results by compensating for unequal student characteristics. Examples of an indicator of equal educational status for women and minorities that would be congruent with each concept are, respectively, (1) equal attendance (exposure to the curriculum) in the public schools by men and women, blacks and whites; (2) equal expenditures per pupil for men and women, blacks and whites, spent for resources that fit the educational, career, and family paths of the students; (3) equal achievement scores and educational attainment for men and women, blacks and whites, who come from similar socioeconomic backgrounds and who have similar attitudes, IQs, and specific abilities; and (4) equal ability scores and educational attainment for men and women, blacks and whites, regardless of background and personal characteristics.

Recent disagreements concerning "bias" in the presentation of education statistics comparing black and white students (e.g., Higher Education Daily, 12 June 1978, p. 3) have been based on different senses of equality of educational opportunity. Persons accepting a concept based on equal opportunity and meritocracy would advocate correcting statistics for differing abilities of the students--are black and white high school graduates with equal SAT scores continuing to college at the same rates? On the other hand, those using a sense of the concept based on equal results would advocate reporting the percentages of blacks and whites going to college without correcting for abilities or past educational performance. In preparing a social report on the status of women and minorities in education, it will be important to indicate clearly which social indicators and analyses are based on which senses of the concept of equal opportunity.

References

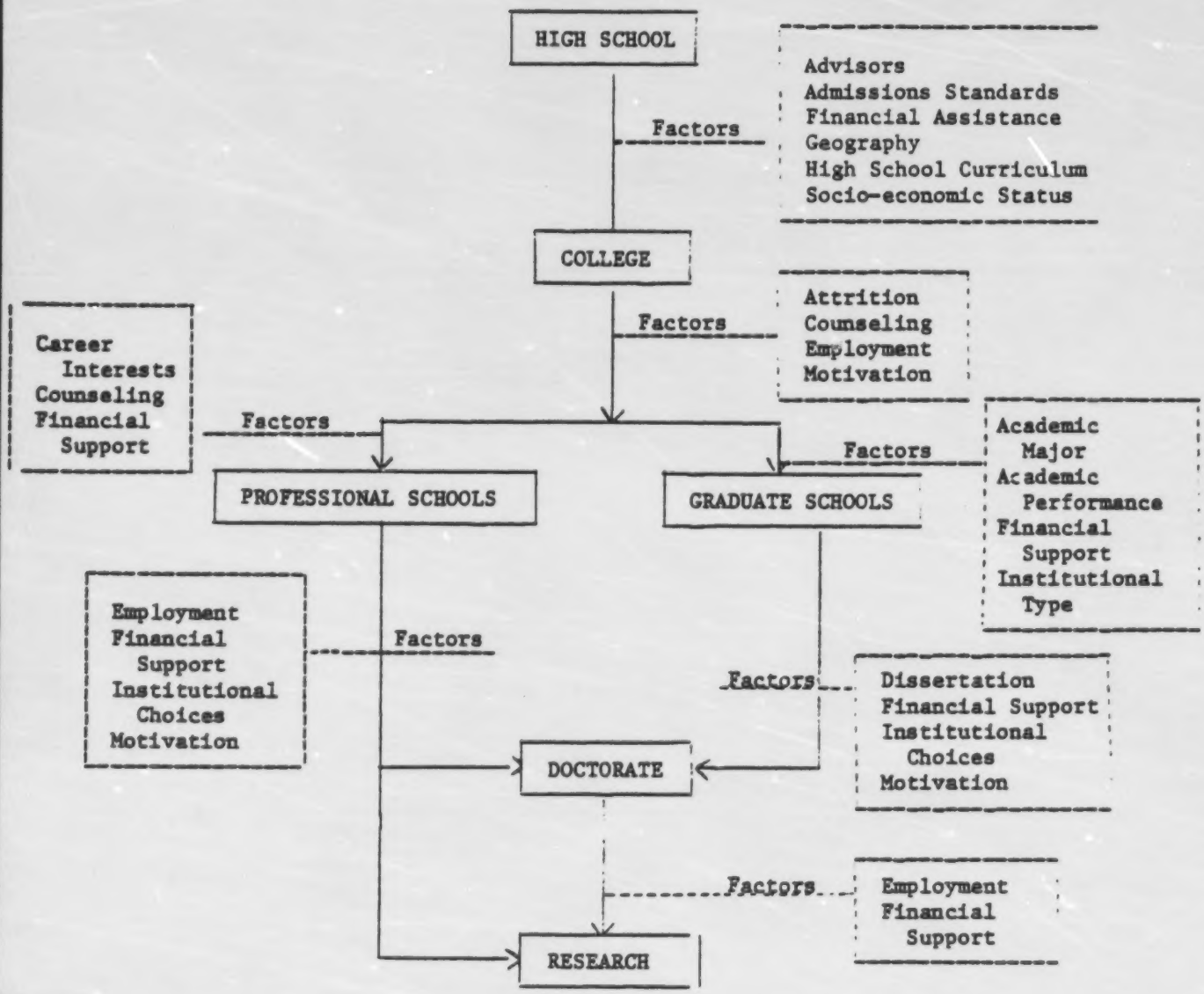
Bell, D. (1972) on Meritocracy and Equality. Public Interest, 29, 29-68.

Coleman, J. (1968) The Concept of Equality of Educational Opportunity. Harvard Educational Review 38(1), 7-22.

Levine, D. M. 91975) "Inequality" and the Analysis of Educational Policy. In. D. M. Levine and M. J. Rane, eds., The "Inequality" Controversey: Schooling and Distributive Justice. New York: Basic Books.

Pugh, G. E., Killalea, J. N., and Loatman, B. (1978). Educational Opportunity: The Concept, its Measurement, and Application. Washington, D. C.: National Center for Education Statistics.

APPENDIX B



FACTORS AFFECTING TRADITIONAL PATHWAYS

TO

GRADUATE EDUCATION AND RESEARCH

Source: Delaney, H. and Albert, R. (1979) Issues Affecting the Participation of Minorities in Biomedical and Behavioral Sciences (Internal Working Paper, Commission on Human Resources, National Research Council.

APPENDIX C

Structure of Indicators of Educational Equity in The Condition of Education

Roslyn Korb

Access

Exhibit	Subpopulations	Factors	Indicators	Year(s)
1.1	3 -34 year olds	Years of school of family head, race/ethnicity	Educational status	1976
2.4	Blacks attending public school	Minority composition of school Region of country	Percent of Black students	1970 1972 1974 1976
2.5	Hispanics attending public schools	Minority composition of school Region of country	Percent of Hispanic students	1970 1972 1974 1976
2.8	14-17 year olds	Race Region and type of area	Percent of 14-17 year olds enrolled 2 or more years below modal grade	1970-1977
3.9		Region Sex	Enrollment in higher education	1970-1977
3.10	18-34 year-olds	Race/ethnicity	Enrollment as percent of (a) population subgroup (b) high school graduates in population subgroup	1970-1977
3.13		Type and control of IHE's Academic rank of faculty	Number and percent of female of fulltime instructional faculty	1978
4.15		Current expenditures per pupil State	Percentage distribution of school districts	1977

Exhibit	Subpopulation(s)	Factors	Indicator	Year(s)
2.3		Race Type of area	Enrollment in private elementary and secondary schools as percent of total enrollment	1967 1972 1977
6.2		Parents attitudes on whether sending children to college should be based on sex or or merit	Percentage distribution	1976
6.14	High school class of 1972	Sex Sex typing of major field in college	Average number of high school semester courses in science and math taken in 1972	1973
6.15		Sex Single sex high school courses	Estimated participation	1976
6.16		Control of institutions of IHE	Estimated percent of institutions with special programs for female or minority graduate students	1978

Choice

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Exhibit	Subpopulation	Factors	Indicator	Year(s)
2.7	8-17 year olds in families	Family income Education of family head Race/ethnicity Sex	Enrollment in school and modal grade status	1970 1977
2.8	14-17 year olds	Race Region Type of area	Enrollment two or more years below modal grade as a percent of all 14-17 year-olds	1970-1977
1.9	17 year old	School enrollment Race Type of exercise	Mean Percent correct on career development exercises	1973-1974
1.16	9,13, and 17 year-olds	Age Type of community	Mean percent correct on political knowledge and attitudes exercises	1969-70 and 1975-76
5.2	9, 13, and 17 year olds	Age Parental education Type of community Art exposure	Differences from national mean on art knowledge and art appreciation exercises	1974-1975
5.1	9, 13, and 17 year olds	Age Type of exercise	Change in science achievement	1969-1970 1972-1973 1976-1977
5.5	16-24 year olds	Age Race/ethnicity Sex	Percent of population not enrolled in school and not high school graduates	1967 to 1977
6.4	Persons 25 years old and older	Age Race/ethnicity	Percent completing at least 4 years of high school	1977
6.5		Race/ethnicity Degree level	Percentage distribution of degree recipients	1975-1976

Outcome

Exhibit	Subpopulation	Factors	Indicator	Year(s)
6.9		Field	Percent Females among first degree recipients	1971 and 1977
6.6		Race/ethnicity Academic field	Percentage distribution of bachelor's degrees conferred	1975-1976

APPENDIX D

Schematic of Interrelations Among the Eight Issue Areas

K.J. Gilmartin

An attempt has been made to summarize literature pertinent to the status of women and educationally disadvantaged minorities in education, as students, teachers, and administrators. The topic has been divided into eight issue areas: (1) educational aspirations, (2) enrollment, (3) retention and dropout rates, (4) educational resources and school environments, (5) educational achievement, (6) subject matter, (7) employment as teachers, and (8) employment as administrators. As stated earlier, the following research questions apply to each of the eight issue areas: How is the status of women and minorities different from the status of while males? What are possible or probably causes of these differences? Which of these causes can be legitimately labeled "barriers" (i.e., someone's freedom of action has been limited), and how can these barriers be diminished or eliminated? What are the recent trends, and what are their implications for the near future?

The eight issue areas are interrelated, and often, variables are related to more than one issue area. The conceptual frameworks developed around each of the issues could be combined to form a single conceptual framework covering all major aspects of the status of women and minorities in education. Figure 14 indicates how the eight issues are interrelated and how their separate conceptual frameworks could be combined.

Source: Gilmartin, K. J. (1979) The Status of Women and Minorities in Education. Technical Report 3, Contract No. 300-78-0150. Prepared for National Center for Education Statistics. Palo Alto, California: American Institute for Research. p. 48-49.

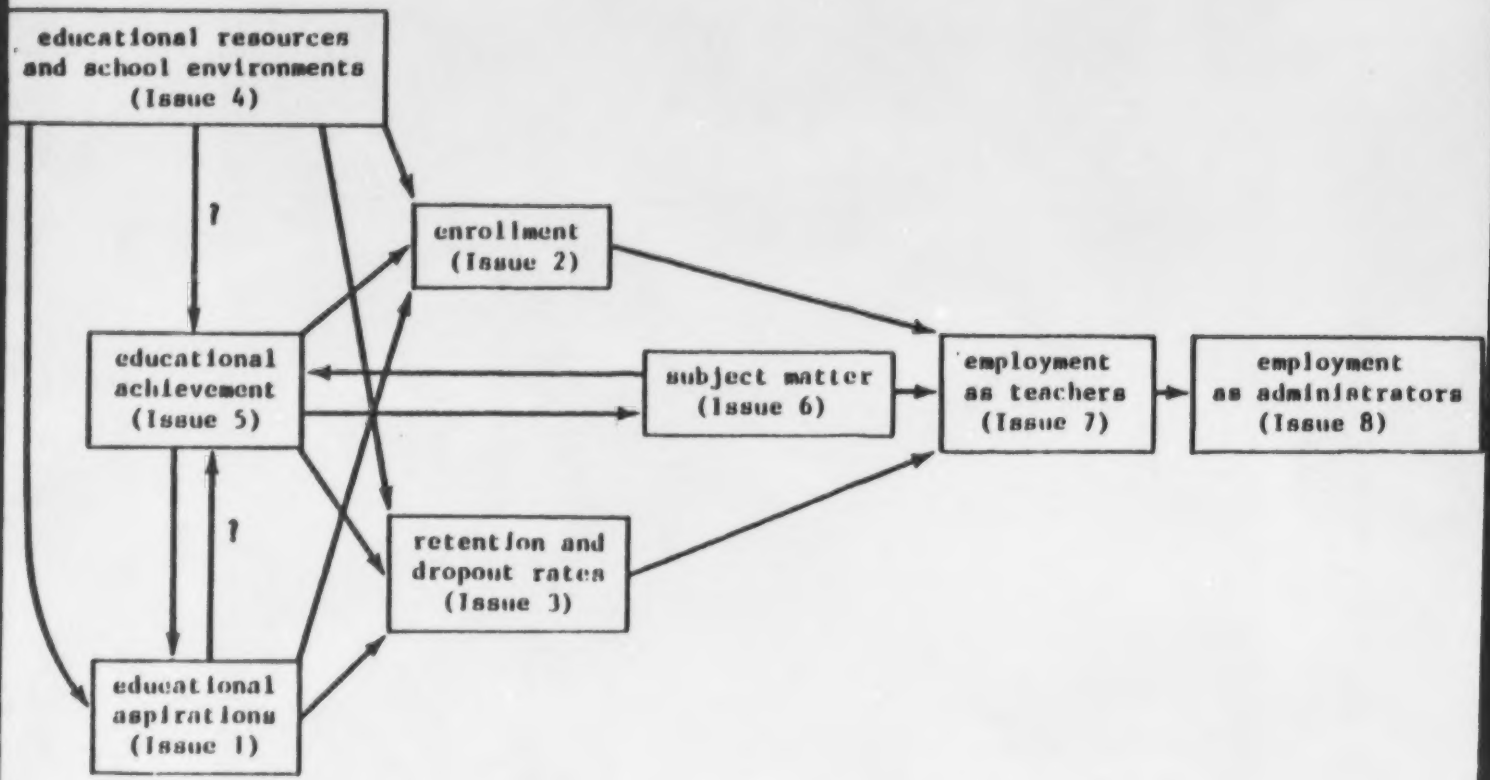

educational resources and school environments (Issue 4)
enrollment (Issue 2)
educational achievement (Issue 5)
subject matter (Issue 6)
employment as teachers (Issue 7)
employment as administrators (Issue 8)
retention and dropout rates (Issue 3)
educational aspirations (Issue 1)

Figure 14. Interrelations among the eight issue areas.

APPENDIX E

Notes on Equity and Equality

John Langan, S.J.

To affirm that a policy, a program, a decision or an outcome is equitable is to say that it meets our sense of what justice requires in the situation. Aristotle conceived of equity as a "sort of justice" and argued that it was needed in order to correct the departures from justice that would result from rigidly adhering to universal rules.[1] The appeal to equity differs from the demand for justice in that it calls on people not simply to apply principles to the social world but rather to look at the results of applying principles or laws in a complex situation and then to make a judgment on what is fair or just in that situation. Thus in the common search for equity, we can look at the barriers to access and to achievement that prevent minorities and women from taking advantage of educational possibilities supposedly available to them. In the name of equity, we can compare promise and performance in different agencies and programs. Considerations of equity are particularly appropriate when citizens attempt to appraise so complex a process as education and to develop policies that can meet the just claims of the many different participants in the process.

In a pluralistic society, judgments of equity will be influenced by the different ways in which they interpret the social situation, the different principles of justice that they espouse, and the different conceptions of the good life that they have. But appeals to equity are a call to find a common ground and to look for solutions to disputes that respect the common humanity of other persons and their need for fair treatment. If they are to achieve equity these solutions should be based on an impartial and accurate reading of the social situation to which they are addressed. Here statistical measures and indicators play a central part both in answering our questions about the extent to which inequities exist in our educational effort and in shaping policies to remove these inequities.

But it is important to remember that statistical evidence of inequality is neither necessary nor sufficient to enable us to draw moral conclusions about inequities in education. It is not necessary, for the occurrence of inequities can also be established by consideration of individual cases of discrimination (as in a court of law) or by recognition of the continuing effects of forms of discrimination previously authorized or permitted by American society.

Statistical evidence of inequalities is also not sufficient in itself to establish the occurrence of inequities. One reason for this is that greater inputs of resources and services may be needed to meet the needs of those who are handicapped or who suffer from past educational deficiencies. In such cases, need rather than strict equality is the decisive consideration for our judgments about equity.[2] Another reason is that we do not regard as inequitable those inequalities that arise from the choice of a good, or when that good is generally available to others on a non-discriminatory basis. Thus the large number of Jewish- or Japanese-Americans who complete higher levels of education constitute an inequality but not a morally objectionable inequity.

A more general reason for denying a direct inference from inequality to inequity is that our constitutional system commits us to accepting certain outcomes as equitable even when they are unequal. Thus the constitutional right of free exercise of religion permits some citizens to choose non-public schools for themselves or their children, although these schools may have greater or lesser resources than local or national averages. States in the exerc ise of their sovereign powers may make varying decisions about the allocation of resources to education. Some inequalitites may then be justificable because they are consequences of constitutionally protected rights or because they are the outcome of a constitutionally established process.

Another more general reason why measured inequality alone does not imply inequity is that the evidence of inequality must serve as part of a larger moral argument which employs both factual and moral premises in order to reach a moral conclusion (as, for instance, that the policies of a given school system are inequitable).[3] Our national commitment to equality of educational opportunity can provide the normative premises needed for moral and political arguments in this area, since in this commitment we acknowledge the wrongness of discrimination by sex and race. This commitment is compatible with a wide range of educational outcomes but it does require us to eliminate discriminatory barriers where these can be shown to exist.

Statistical data then cannot of themselves yield moral conclusions. But if they are gathered and presented in ways that illuminate significant turning points and causal factors in the educational process, they can alert both the public and policy makers to the possible existence of inequity in the educational system. They can also be used in support and in criticism of proposals to remove or to alleviate inequities that occur. The preparation and presentation of statistical data to serve in arguments about equity requires in addition to the customary professional standards of accuracy and honesty, the exercise of judgment as to those factors and areas in the educational process most worth investigating and a sensitivity to the moral issues involved. This sensitivity, however, must be distinct from the advocacy of particular moral conclusions or policy positions.

Two further considerations have occured to me about recommendations for further work:

1) a great deal of emphasis was put on disaggregation of data according to sex and race. This can lead us to neglect the importance of class factors. Perhaps these might come out more clearly if figures are broken down according to the tax base of different school districts or according to per pupil expenditures.

2) comparative studies of public and private schools (particularly Catholic parochial schools and Christian schools) might well bring out the relevance of cultural and religious attitudes on educational outcomes and career choices. This is, I suspect, a sensitive area for all parties concerned; but it may be of particular importance in achieving an effective equality of opportunity for women.

FOOTNOTES

1 Aristotle. Nicomachean Ethics V. 10

2 William Frankena. Ethics. 2nd edition. (Englewood Cliffs, N.J.: Prentice-Hall), 1973. p. 51.

3 cf. R.M. Hare. The Language of Morals. (London: Oxford University Press), 1952. p. 29.

APPENDIX F

Draft Findings: Committee on National Statistics, Conference on Indicators of Equity in Education, October 11-12, 1979

Robert Parke

This is what I offered as "findings of the conference" on Friday afternoon.

1. The development of indicators of equity in education requires distinguishing among and recognizing scientific, moral, and political questions.

2. A key part of the scientific basis for indicators of equity in education may be found in the elaboration and extension of existing research on the socioeconomic life cycle (D. Featherman and R. Hauser, Opportunity and Change. N.Y.: Academic Press, 1978) and associated research.

3. Research on indicators of equity in education will flourish best in the context of a broad program of social science research on indicators of life cycle and other social factors in educational outcomes--research which links education to lifetime outcomes and to major trends in the society.

4. In such a context scientific objectives can be distinguished from political and moral ones. There can be recognition of conflicting objectives and values, and the chances of producing (in Biderman's terms) indicators, not just vindicators, are enhanced.

5. Such a research program must give sustained attention to questions of measurement, guided by testable models of the relevant social processes. It should encourage research on the meaning of observed differences, validation of indicators, and testing of a variety of indicators of outcomes of education.

6. To ensure participation by individuals of the requisite skill and to ensure high quality work, the program should provide research grants, awarded through peer review.

7. Priority should be given to

   a. Disaggregating statistics by age, sex, color, ethnicity, and other relevant characteristics.

   b. Linking data sets.

   c. Issuing data in the form of identity-deleted unit record files.

   d. Developing data on transitions in individual lives, from employed to unemployed, married to divorced, poor to nonpoor, etc.

   e. Using analytical strategies that emphasize the study of cohorts, life cycles, and social change.

   f. Insulating absolutely the statistical and research data from use for administrative determinations, legal actions, or other uses affecting the subject of the individual record.

8. Specific programs:

   a. Do,for women, The Survey of Occupational Changes in a Generation.

   b. Demographic and social accounts for education.

   c. Macrosocial dynamic structural equation models.

   d. Review of plans for 1985 Census.

   e. Repeat Civil Rights Commission report on Indicators of Equality and use as model for others. Experiment with various "reference groups" for displaying data; don't propagate assumption that white males represent "heaven". Also, show information on distributions (in addition to central tendency)when necessary in order to avoid misleading readers.

   f. Adapt Condition of Education to show detail for individual minorities and women.

APPENDIX G

Developing Social Indicators of Inequity in Education: Working Paper

Abbott Ferris

Developing Social Indicators of Inequity in Education: Working Paper

1. Issues: Sampling Reliability

Social indicators of education that are based upon samples of the population provide adequately reliable measures for the male-female dichotomy, but do not permit reliable measures in time series of other minority categories, such as Blacks, American Indian, Mexican Americans, Japanese Americans, Chinese Americans, Filipino Americans, Puerto Ricans, etc. The only reliable basis for national educational indicators of these minorities is the decennial census. In examining educational indicators in time series, it is necessary to disaggregate not only by these minority group categories, but also by sex, and frequently by age. Such disaggregation requires a sample sizes larger than now employed by the Current Population Survey (about 60,000 households). The following page

illustrates the problem of differential sampling error between population categories compared on the per cent enrolled in school, 18 and 19 year olds, by sex and color. The greater variance in the trend of non-whites is evident. This sampling variability arises from the considerably smaller sample size of non-whites in the sample. Comparisons with prior observations on the same category or current comparison with the white males, thus, becomes tenuous. (Ferriss, 1971, p. 22-24; Ferriss, 1973.)

In developing a system of indicators reflecting inequity (inequality) in education, a primary concern should be the degree of sampling variability of the basic data upon which the measure is based. Effort should be concentrated upon data sets offering an acceptable level of reliability in the comparison between the minority group and the standard of comparison.

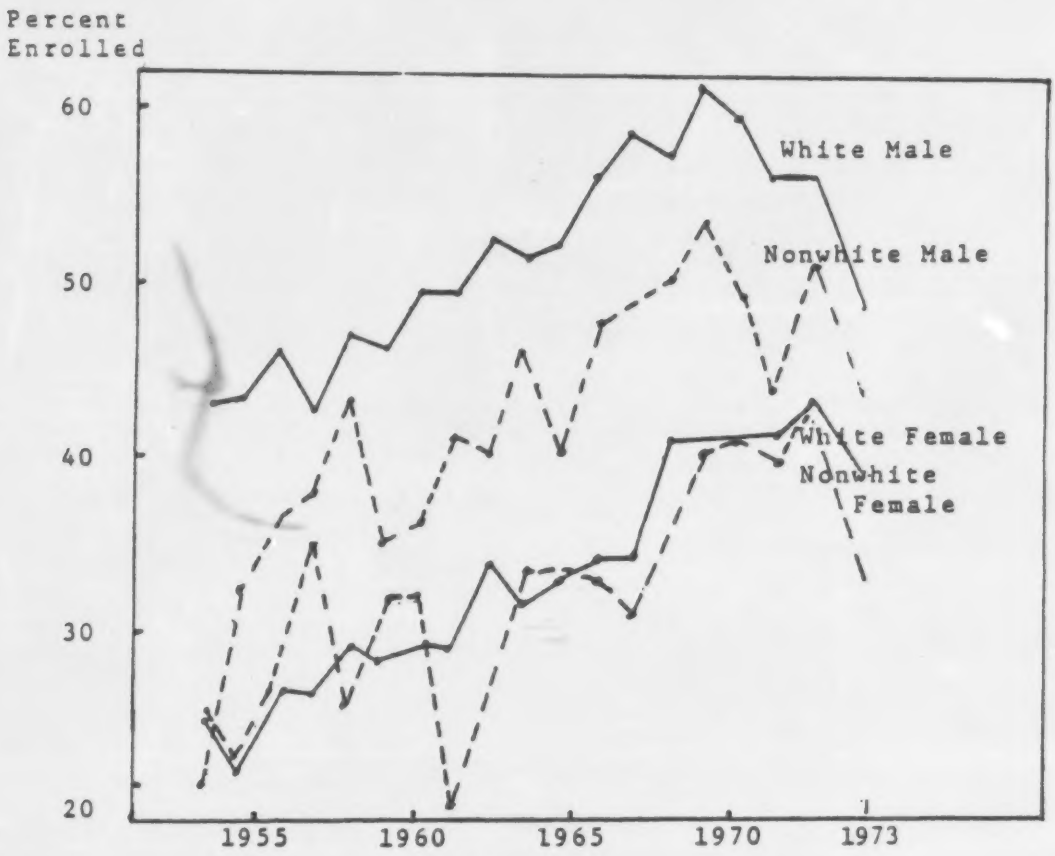
The above affects the use of population samples, but would not apply to complete censuses, to complete coverage in testing school populations, nor population samples which deliberately oversample minority categories in order to obtain acceptably reliable measures.

Samples selected to be cumulative over time, however, of sufficient size, may provide data of acceptable reliability, the National Health Interview Survey being an example of this. Another possible solution to the issue is the combination of adjacent monthly or annual surveys to provide an expanded sample size, as has been done for some purposes with the monthly Current Population Survey, and the General Social Survey (NORC). This procedure expands the period of observation, thereby reducing the time-point precision of the data.

2. Issues in Monitoring Educational Indicators: Identifying Turning Points

The process of monitoring inequity in education involves examining serialized observations in time series. Observations usually are available

18-19 Year Old School Enrollment



Percent of the Population 18 and 19 Years of Age Enrolled in School, 1954 - 1971 (October), by Sex and Color

Source: School Enrollment, Current Population Reports, Series P-20, U.S. Bureau of the Census, for dates indicated

	M		F	
Year	W	N-W	W	N-W
1973	48.4	43.5,	38.7	32.8
1974	45.5	46.1	39.9	42.1
1975	49.6	49.9	43.5	44.7
1976	46.9	54.9	44.0	46.4
1977	47.7	50.5	43.4	46.3
1978	47.2	50.5	42.7	42.4

annually. Monitorship should focus particularly on marked changes in trend, especially adverse changes. The continuation of a trend showing little variability may provide evidence, if the trend is inequitable, that current programs are inadequate or insufficient. In preparing tables and charts for annual review, as might follow receipt of the annual October Current Population Survey educational enrollment data, particular attention should be devoted to marked changes in past trends, prominent turning points, and departures from the expected. For example, the leveling off of school enrollment of 18-19 year old white females following 1968 was a distinct turning point from a trend of persistent increase in the per cent enrolled. The levelling off of the rate among white females, however, was in contrast to the decline which the trend in enrollment of white males experienced. It is only through careful statistical analysis and thorough familiarity with the phenomena being monitored that sensitivity to such turning points is developed. For this reason the staff participating in the monitorship function must have the time and resources to perform at a high level of efficiency.

3. Issues: Articulation and Time to Completion

The decentralized and disjointed character of U. S. educational institutions makes necessary special attention to articulation between segments of the system. From the standpoint of enrollment these junctures may be readily identified: high school to college, junior college to 3rd year senior college, college graduation to graduate and professional school entrance, etc. An appropriate measure of articulation is the ratio of entrance to the next higher level to the output of the "feeder" level, for example, the ratio of the first time enrollment in college to the high school graduates the preceding spring. Such measures are gross in that they do not insure that only the output of the current year comprises the input of the current year at the next higher level. This problem is illustrated by the vast swings

in ratio statistics of education following World War II. It becomes acute only when there is a delay in entrance to the next higher level, as when men delay continuing education for military service, or women delay continuing education for work or childbearing. The problem has no ready solution when institutional statistics are used, but survey data may resolve it by asking the question, as does the Current Population Survey, whether enrolled last year of those who report enrolled this year.

A related aspect of articulation is time to completion. From date of entrance the time required to complete a course of study, by discipline, provides a useful indicator. It is desirable to minimize completion times so as to maximize lifetime years of maximum qualifications. However, each discipline or profession may involve different combinations of experience and college attendance. Within discipline, however, comparison of minority group progress should provide indicators of delay and suggest the presence of hurdles or barriers to orderly progression to completion. (Jr. College Asso. can provide references on articulation; there was an important study in California several years ago.)

4. Research: Influencing the Child's Motivation

Studies have demonstrated the significance of the motivation of the student, the self-conception of the student, the influence of the expectation of others upon the effort exerted by the student, and so forth. Despite the obvious importance of these indicators in educational achievement, there are few systematic observations on broadly representative samples. An example is the measures of motivation included in the freshman college student sample of the study initiated by the American Council on Education in the 1960s.

Occasional national sample studies of college students aspirations have been conducted (NORC, ETS, etc.), but there are no periodic, continuing indicators of these dimensions.

To initiate a vehicle for periodically assessing student motivation and aspiration would not be productive unless research also was initiated into the influences that bear upon motivation. The research problem is one of identifying the social and social psychological influences which affect long-term student motivation which arise from the social environment of the student: the family, the peer group, the church, the economy, government, etc. Research, consequently, is needed to provide appropriate measures of motivation and aspiration, to validate them, and to identify the social influences affecting them so that intervention, if desirable, might be structured intelligently. For example, the provision of fellowship funds to help pay for student's education may be the most obvious means of increasing minority group participation in higher education, but there may be other interventions which also would stimulate continuation ratios and enrollment rates, such as steps to stimulate family members to influence educational aspirations, ways of maximizing the effect of religious norms which reinforce educational attainment, means of supporting delayed gratification in the presence of economic job opportunities, etc. To illustrate, periods of economic depression do not decrease college enrollment rates, but periods of high employment do, since available jobs attract students into work rather than student roles.

Another illustration, is the inadequate explanations offered, even after study, of the decline in scores on achievement tests by subject which occurred in U. S. secondary schools beginning about 1963. (Wirtz, 1977; Harnischfeger and Wiley, 1975).

5. To discuss the desirable characteristics of a system of indicators that would facilitate assessment of the impact of educational policies on equity in education.

5a Inequity measures should be reviewed and uses of them suggested, the following being possibilities: ratio of a measure of a minority group to the value for white males; ratio to a maximally desirable social goal; ratio of a geographic measure to the geographic area showing the most desirable condition; ratio to the national average; ratio to the value 1 standard deviation unit above the mean, etc. Ratios based upon various measures of variability, also, should be identified:-- the coefficient of variation, ratio of variances, interquartile range, the range, etc.

5b Cohort measures. Where data are available annually by single year of age, cohort indicators may be developed to show historical development. For enrollment, life table concepts may be employed to generate statistics such as expected total years of schooling, rate of dropping out of school, additional years of schooling expected for a given age, etc.

5c Where time series provide disaggregation by minority group/sex, encourage research using macro dynamic structural equation models, employing social indicators.

6. To recommend research activities which may be needed for development of the framework of indicators.

6a Research to develop and improve models of the educational process which have as the dependent variable the educational status (achievement test score) of categories of the population (men/women, minority groups, etc.).

6b Relative to the discussion of teacher quality:--Is differential minority group performance a result of teacher preferences (prejudices)? An approach to measuring teacher prejudice is to ask teachers to respond to objective scales of attitudes reflecting prejudice.

6c The problem of developing indicators of non-formal educational experiences, self-generated learning, lifetime continuing education, and other avenues to competency which are external to the formal system. The impact of non-formal education on occupational attainment. Research to devise means of developing such indicators.

6d Research to evaluate the learning process, particularly teacher behavior and teaching techniques. What form of intervention to improve teacher competence is most effective? Is the provision of a resource person to stimulate teachers to resolve special problems (learning to read) effective? The central question might be: How does discrimination find its way into the learning process?

6e Consideration of the most useful form of a mid-decade census for studies of inequity.

6f Research to develop scales to measure educational values, so that assessments may be made through national sample surveys of attitudes supportive of equity in education. Measures would reflect the educational orientation of minority groups in the population. Value areas might include:

parent's ambition for children to have an education to X level; interest of parents in the productivity of the schools in stimulating educational achievement; concern that talent is developed to its highest potential; concern that stereotypes are washed away; concern that education provides the basis for fulfillment of family roles; willingness to support the schools through bond issues, etc.

6g A precautionary note on the need to make allowance, in assessing inequity in education, for subcultural differences in life style, the need to preserve values of subcultural groups if such are essential to preservation of a way of life which is functionally effective. Example: Amish people whose role structure and educational requirements are inconsistent with attainment of high levels of education. Another example: Hutterites.

7. To identify existing data that can be used to produce needed indicators.

7a In studies of inequity, the potential for data linkages.

7b Geographic basis for identifying inequities: Use of the decennial census to identify inequities by county, particularly illiteracy, school enrollment, educational attainment.

7c Use of State achievement test scores by subject, selected grades, by school and/or school district, for certain states, in time series. Assessment of increases or decreases in resource allocation may be made against changes in achievement levels. Male-female comparisons. Extent of identification of minority groups must be determined. Design might be developed wherein each state could be considered an experimental trial in evaluating application of resources.

7d Use of the National Assessment of Educational Progress to identify inequities by sex, by region, by urban-rural, etc. (How detailed are NAEP minority group categories?) Short term time series may be used.

7e The additional uses of various data banks should be explored for the development of indicators of inequity: Project Talent, Equality of Educational Opportunity, the data held by ETS, ACT, ACE freshman survey, Longitudinal study of the High School classes, etc.

Did Project Talent include teacher assessments by the student, so that teacher quality might be related to subsequent student outcomes, by sex, etc.? Does sex of the teacher affect relative progress of boys, girls?

In summary, research is needed to develop understanding of student motivation and to identify appropriate measures of motivation and aspiration which might comprise an indicator to be used to periodically assess this dimension, say, at the high school level and at the college level.

BIBLIOGRAPHY

Ferriss, Abbott L.
1971 Indicators of Trends in the Status of American Women, New York: Russell Sage Foundation.

Ferriss, Abbott L.
1973 "Monitoring and Interpreting Turning Points in Educational Indicators," Social Indicators Research, I (1974) 73-84.

Harnischfeger, Annegret, and David E. Wiley
1975 Achievement Test Score Decline: Do We Need to Worry? Chicago: CEMREL, Inc.

Wirtz, Willard
1977 Report of the Advisory Panel on the Scholastic Aptitude Test Score Decline, Princeton: Educational Testing Service.

Addendum: Notes for Consideration

1. To review the currently available indicators on equity in education.

1a Measures of the employment of teachers in elementary, secondary, higher education, by sex and minority group status.

1b List indicators that have shown promise that have been published.

Organize them in relation to some framework (such as attachment H or N).

Suggest indicators which provide the finest degree of reliable detail.

Sources:

Indicators of Performance of Educational Systems, OECD, Paris, 1973.
Mathematical Models for the Education Sector, OECD, Paris, 1973 and others from OECD.

Folger, Astin, Bayer, Human Resources and Higher Education, R. Sage, 1970.
Folger, Nam, Education in the U. S. (Census Monograph Series) based upon 1960 census.

Ferriss, Indicators of Trends in American Education, R. Sage, 1969.
Ferriss, Indicators of the Status of American Women, R. Sage, 1971.

Social Indicators of Equality for Minorities and Women, Comm. on Civil Rights.

The Condition of Education.

etc.

APPENDIX H

CONFERENCE ON INDICATORS OF EQUITY IN EDUCATION

Washington, D.C.

OCTOBER 11-12, 1979

A G E N D A

October 11 - National Academy of Sciences, 2101 Constitution Avenue, N.W., Room 150

9:00	AM	Opening Remarks	Carol Weiss, Chairman
9:15		Greetings from the Committee on National Statistics	Conrad Taeuber
9:30		Background for the Conference	Leslie Wolfe
9:45		Concepts of equity - discussion (Background papers A, B, C, D pp. 6-11)	Carol Weiss
11:00		Use of models in identifying useful indicators (Background papers D, F pp. 69-70, G, E, H, I)	Robert Rossi
12:30	PM	LUNCHEON	
1:30		Currently available indicators of equity in education	
		a. "Social Indicators 1976" and future plans (Background paper J)	Denis Johnston
		b. Activities of the Commission on Civil Rights in assessing the nation's progress towards achieving equity (Background paper K)	Havens Tipps
		c. "Condition of Education 1979" (Background paper L, M)	Roslyn Korb
3:30		Issues to consider in developing a system of indicators of equity in education - discussion (Background papers H, N)	Carol Weiss
4:30		Adjournment	

October 12 - Joseph Henry Building, 21st & Pennsylvania Avenue, N.W., Room 200A

9:00	AM	Future plans of NCES for indicators of equity in education (Background paper D)	Roslyn Korb
9:15		Characteristics of a system of indicators that would facilitate assessment of the impact of education policies and programs on equity in education - discussion	Carol Weiss
10:00		Research on social indicators (Background papers E, O)	Robert Parke
10:15		Research activities needed for development of the framework of indicators - discussion (Background paper P)	Carol Weiss
11:00		Existing data that can be used - discussion	Carol Weiss
11:45		Efficient mechanisms for acquiring unavailable data - discussion	Carol Weiss
12:30	PM	LUNCHEON	
1:30		Reactions of representatives of federal agencies and special interest groups to the discussions and suggestions	Carol Weiss
3:30		General discussion	Carol Weiss
4:30		Adjournment	

NATIONAL RESEARCH COUNCIL

COMMITTEE ON NATIONAL STATISTICS

Conference on Indicators of Equity in Education

October 11-12, 1979

Invited Participants

Participants

Carol WEISS, Chair	Department of Sociology, Harvard University
Abbott FERRISS	Department of Sociology, Emory University
Joan HARRIS *	Department of Sociology, Washington State University
Jose HERNANDEZ *	Department of Sociology, University of Wisconsin, Milwaukee
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Robert JOHNSTON	Statistics Office, United Nations
Joseph KRUSKAL	Mathematics & Statistics Research Center Bell Telephone Labs, Murray Hill, N.J.
William KRUSKAL *	Department of Statistics, University of Chicago
John P. LANGAN	Woodstock Theological Center, Georgetown University
Robert MARE *	Department of Sociology, University of Wisconsin, Madison
Setsuko Matsunaga NISHI	Department of Sociology, City University of New York, Brooklyn
Robert PARKE	Social Science Research Council, Washington, D.C.
Robert ROSSI	American Institutes for Research, Palo Alto, California
Conrad TAEUBER	Population Center, Georgetown University

Theresa Aragon de VALDEZ *	School of Social Work, University of Washington
Dorothy ZINBERG *	Center for Science and International Affairs, Kennedy School of Government, Harvard University

Representatives of Federal Agencies and Other Organizations

Murray ABORN	Social Measurement and Analysis Section, National Science Foundation, Washington, D.C.
Elizabeth A. ABRAMOWITZ	Psychological Services, Inc., Washington, D.C.
Charles BYCE	College Entrance Examination Board, Washington, D.C.
Alfred COOKE	National Advisory Council on Black Higher Education, Bureau of Higher and Continuing Education, Washington, D.C.
Nancy DEARMAN	National Center for Education Statistics Division of Education, Washington
Donald HERNANDEZ	Social Science Research Council, Washington, D.C.
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Carol SMITH	National Advisory Council on Black Higher Education, Bureau of Higher and Continuing Education, Washington, D.C.
Richard TAEUBER	Women's Action Program, Office of Assistant Secretary for Planning and Evaluation, HEW, Washington, D.C.
Havens TIPPS	U.S. Commission on Civil Rights, Washington, D.C.
James VANECKO	Deputy Assistant Secretary for Policy Analysis, Division of Education, Washington, D.C.
Leslie WOLFE	Women's Education Equity Act Program, Office of Assistant Secretary for Education, HEW, Washington, D.C.

* Not in attendance

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Dorothy GILFORD	Committee on National Statistics
Edwin GOLDFIELD	Committee on National Statistics
Heidi HARTMANN	Committee on Occupational Classification and Analysis
Eleanor MARTIN	Committee on National Statistics
Patricia ROOS	Committee on Occupational Classification and Analysis
Miron STRAF	Committee on National Statistics

BACKGROUND PAPERS FOR CONFERENCE

A. National Center for Education Statistics. Educational Opportunity, The Concept, Its Measurement and Application, NCES 78-201, 1978.

B. Greider, William. "A bad joke on Carnegie's ghost", The Washington Post, September 9, 1979 and "Social Science: Chin-Deep in Banality", The Washington Post, September 16, 1979.

C. Marwell, Gerald, Rachel Rosenfeld and Seymour Spilerman. "Geographic Constraints on Women's Careers in Academia", SCIENCE, Vol. 205:1225-1231, 21 September 1979.

D. Gilmartin, Kevin J. The Status of Women and Minorities in Education, American Institute for Research, Palo Alto, 1979.

E. Parke, Robert and David Seidman, "Social Indicators and Social Reporting", The Annals of the American Academy of Political and Social Science, Vol. 435:1-22, 1978.

F. Ferriss, Abbott L. "Trends in Education and Training", The Annals of the American Academy of Political and Social Science, Vol. 435:157-178, 1978.

G. Land, Kenneth C. "Social Indicator Models: An Overview" in Land, Kenneth C. and Seymour Spilerman, Social Indicator Models, Russell Sage Foundation, New York, 1975.

H. Delaney, Harold and Richard Albert. Issues Affecting the Participation of Minorities in Biomedical and Behavioral Sciences, (internal working paper) Commission on Human Resources, National Research Council, 1979.

I. Levene, Howard P. Report of the Panel on Science Education Indicators. May 18, 1978. (Paper)

J. Levine, Daniel B. "Demographic and Social Indicator Studies: New Needs and Objectives", Statistical Reporter, Number 79-7, 1979, Office of Federal Statistical Policy and Standards, U.S. Department of Commerce.

K. United States Commission on Civil Rights. Social Indicators of Equality for Minorities and Women, 1978.

L. National Center for Education Statistics. The Condition of Education (1979 Edition), 1979.

M. Herriot, Robert. "Some Observations on 'Condition of Education' (1976 Edition), Social Indicators Research, Vol. 6:181-196, 1979.

N. National Advisory Committee on Black Higher Education and Black Colleges and Universities. Access of Black Americans to Higher Education: How Open is the Door?, 1979.

O. de Neufville, Judith Innes. "Validating Policy Indicators", Policy Sciences, Vol. 10:171-188, 1978-79.

P. Gappa, Judith M. Improving Equity in Postsecondary Education - New Directions for Leadership. National Institute of Education, 1977.